IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.

3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 530 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ MAY 1961

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Airline Model
GCN-3327

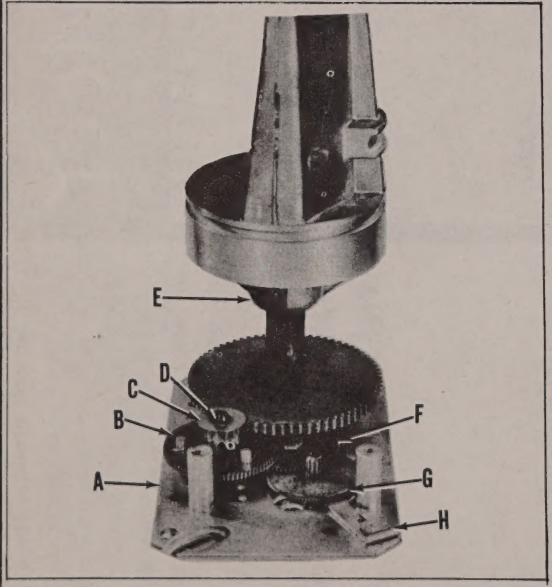
Magnavox Chassis
57-05-00, 57-07-00

TROUBLESHOOTING CHART

MODEL GCN-3327

DIFFICULTY	CHECK:
INOPERATIVE NO TRANSFORMER HUM	1—115 V. line cord to outlet line switch. 2—115 V. connections within control box for looseness. 3—Open circuit in primary.
INOPERATIVE TRANSFORMER RECEIVING POWER	1—Wire to #3 terminal. 2—#3 to #1 & #4 24 Volts. (Depress rocker switch toward terminal being checked. Disconnect #1 & #4 cable connections.)
INOPERATIVE MOTOR RECEIVING POWER	1—Cable #3 to #1 & #4 24 Volts. (Depress rocker switch toward terminal being checked. Disconnect #1 & #4 at drive motor terminal board.) 2—Capacitor in control box by substitution. 3—Gear train for tightness due particularly to foreign matter. Check with motor stationary. Check mesh with first gear (Part No. 11428). ¼ of a tooth back lash maximum. Run motor to check smoothness and freeness of mesh. Retighten adjustment screw if adjustment was necessary and recheck back lash and run motor again to make sure adjustment was not changed by tightening. 4—Motor coils for open, shorted wires. 5—Motor shaft for tightness. 6—For water damage—replace rubber umbrella.

DIFFICULTY	CHECK:
ROTATOR OPERATES NORMALLY BUT GIVES NO INDICATION	1—Check #3 to #2—6 to 8 Volts. 2—Place jumper between #2 & #3. Light should be on. 3—Lamp bulb by substitution. 4—#2 cable wire for continuity. 5—Drive motor #2 terminal to cam operated switch for continuity. 6—Switch for continuity. 7—Dress contacts with kraft paper to improve contacts if necessary. 8—Adjust switch for proper contact when cam finger drops into cam notch. Tighten securely after resetting. 9—For proper cable connection sequence at both ends of cable. 10—Switch mechanism in drive. a—Shorts to housing at switch blades and solder connections. b—Switch malfunctioning. c—Cam disc hub is tight.



AD-7A ANTENNA DRIVE (MOTOR REMOVED)

PARTS LIST

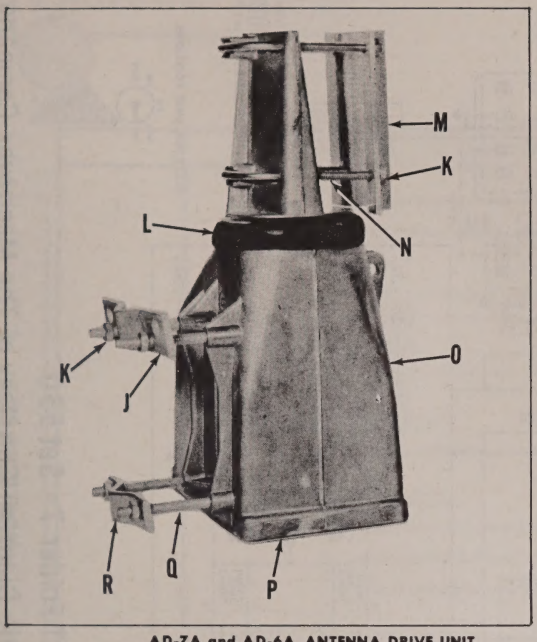
AD-7A ANTENNA DRIVE MODEL GCN-3327

REF. LTR.	DESCRIPTION	PART NUMBER
A	Main Plate Sub Assembly	11419
B	Third Gear Assembly	11433
C	Washer Flat Spring Brass	11490
	Lock Ring Drive Shaft	11440
	Capacitor Motor	11407
D	Lock Ring Third Gear	11436
	Steel Balls 5/32" dia.	11443
E	Mast Support Assembly	11680
F	Pinion Gear	11432
G	First Gear Assembly	11428
H	Idler Arm Assembly	11425
J	Guy Clamp Plate	11511
K	Nuts, for studs	11007
L	Umbrella	11668
M	Clamp	11690
	#6 Self Tapping Screw	11708
N	U Bolt	11691
O	Drive Motor Housing	11666

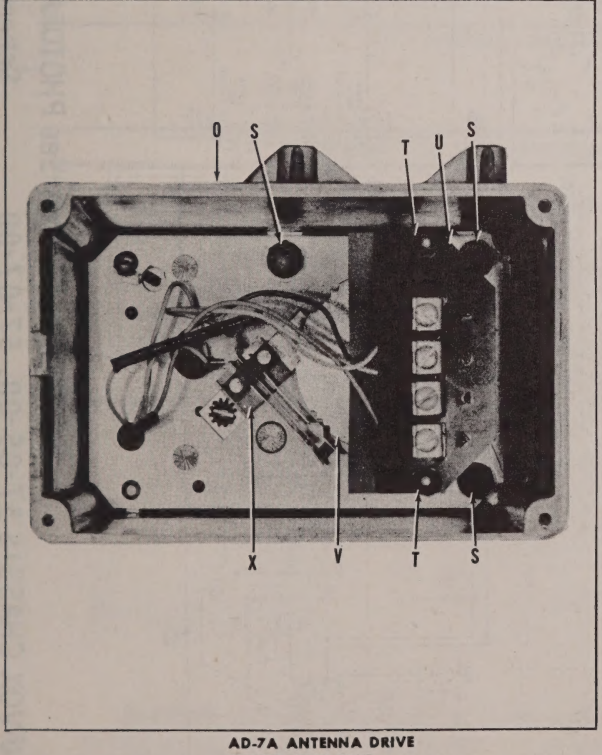
PARTS LIST (Cont.)

MODEL GCN-3327 AD-7A ANTENNA DRIVE

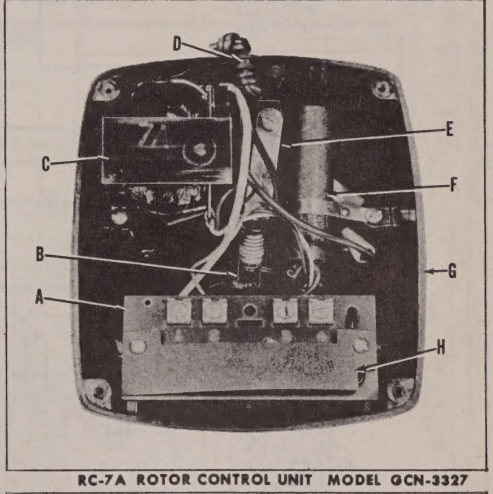
REF. LTR.	DESCRIPTION	PART NUMBER
P	Housing Bottom Cover	11676
Q	Stud, ¼"—20	11004
R	Clamp Plate	11461
S	Screw Hex. Hd.	11703
T	Push-on Speed Nuts	11488
U	Terminal Board Assembly	11492
	Fish Paper Wire Retainer	11545
V	Flasher Cam Assembly	11546
X	Switch Assembly	11645
	RC-7A ROTOR CONTROL	
A	Switch Assembly	11645
B	Lamp (G.E.)	11100
C	Transformer	11611
D	Fiber Grommet	11609
E	Lamp Socket and Bracket	11099
F	Capacitor	11655
G	Control Housing	11337
	Dial Face Assembly	11620
H	Fish Paper Terminal Board Cover	11606
	Fish Paper Barrier	11602
	Bottom Cover	11694
	Rubber Bumper	11462



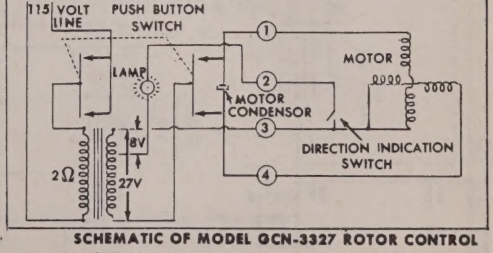
AD-7A and AD-6A ANTENNA DRIVE UNIT



AD-7A ANTENNA DRIVE
MODEL GCN-3327

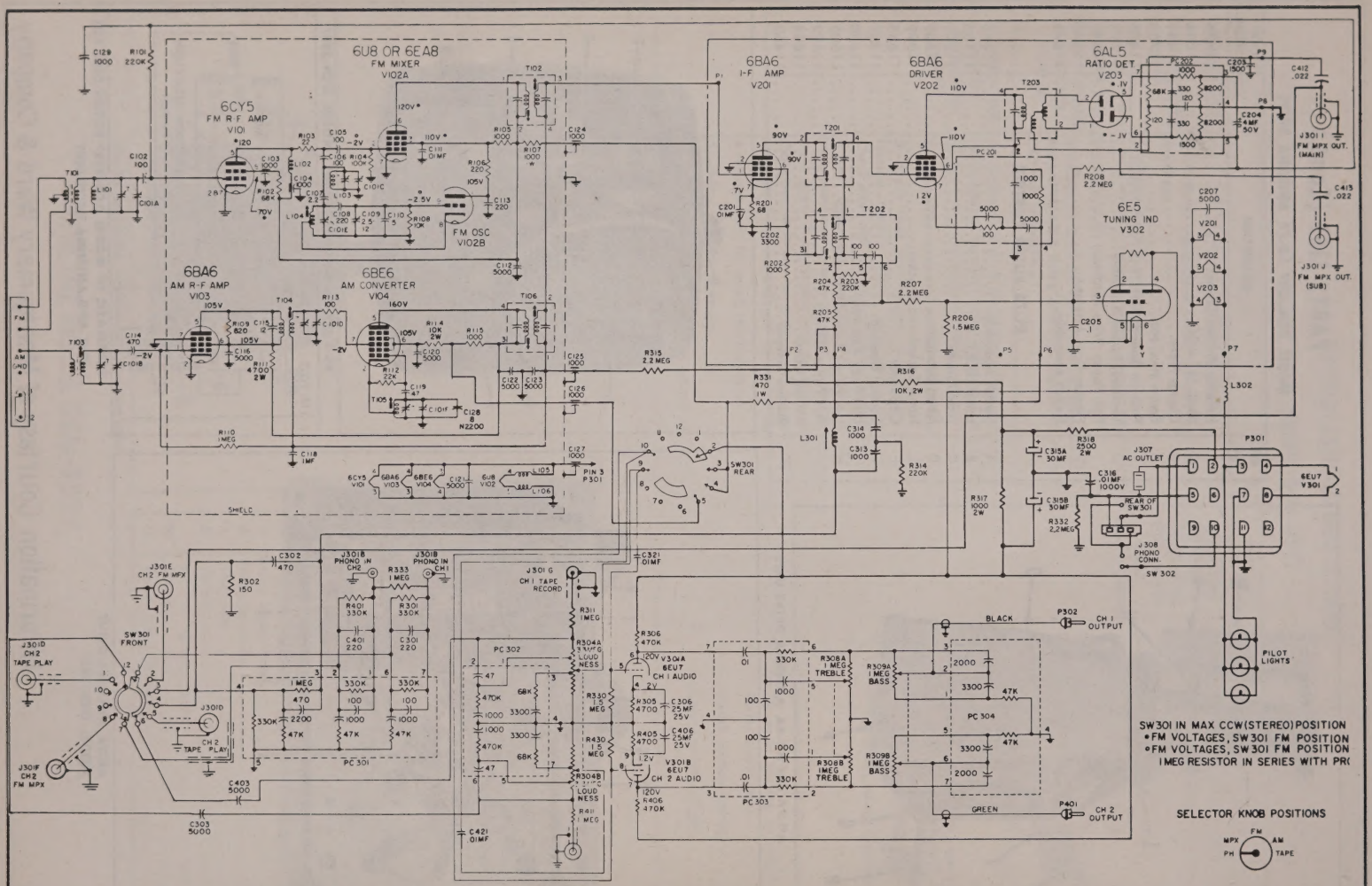


RC-7A ROTOR CONTROL UNIT MODEL GCN-3327



SCHEMATIC OF MODEL GCN-3327 ROTOR CONTROL UNIT AND ANTENNA DRIVE UNIT

Information Courtesy of Montgomery Ward & Company



For Similar Chassis See PHOTOFACT Folder 7 - Set 530

MAGNAVOX CHASSIS 57-05-00, 57-07-00 Schematic Diagram Courtesy of The Magnavox Company

PHOTOFACT® Folder

PRODUCTION CHANGE BULLETIN 259

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 502

Emerson Models 1600, 1601, 1602, 1604, 1605, 1608, 1609, 1610, 1612, 1613, 1614 (Ch. 120517E, 120518F, 120519C, 120520D, 120525E, 120526C, 471235) were covered in PHOTOFACT Folder 1 - Set 502.

The following changes were made by the manufacturer during late production.

TO IMPROVE IF RESPONSE

C15 is decreased from 820mmf to 330mmf.

TO REDUCE FILTERED BOOST

R73 is increased from 100K to 120K.

TO IMPROVE VERTICAL HOLD

R66 is increased from 10K to 22K.

C47 is decreased from .01mfd to .0047 mfd.

R63 is increased from 3300Ω to 5600Ω.

TO IMPROVE AUDIO RESPONSE

R37 is connected to B Boost instead of the 230 volt source.

EMERSON CHASSIS 120517E, 120518F, 120519C, 120520D, 120525E, 120526C, 471235

(Continued On The Reverse Side)

PRODUCTION CHANGE BULLETIN 259

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 5 IN SET 412

Chevrolet Models 987730, 3748611 were covered in PHOTOFACT Folder 5 - Set 412.

Model 985003 is electrically similar except for the following changes.

COMPONENT CHANGES

L5 (Osc. Coil) is changed to Part #1221151.

L10 (Filter Choke) is changed to Part #7274342.

CHEVROLET MODEL 985003

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	7277055	Control (Two used)
Knob	3774772	Dummy
Knob	3774774	Tone
Pushbutton Ass'y	1221132	Includes Front Bearing Plate and Slides (Set of 5 Buttons)
Individual Pushbutton	7270395	

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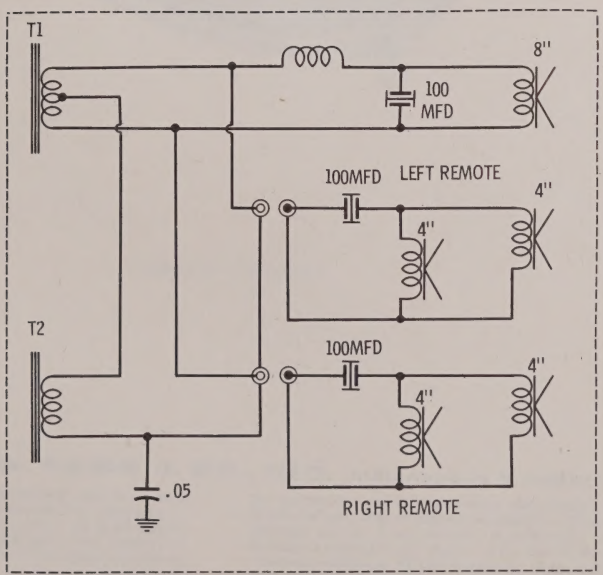
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Cabinet	141122	French Grey, Models 1600, 1601
Cabinet	141138	French Grey, Model 1602
Cabinet	141145	French Grey, Models 1604, 1605
Cabinet	141122A	Ivory, Models 1600, 1601
Cabinet	141138A	Ivory, Model 1602
Cabinet	141145A	Ivory, Models 1604, 1605
Cabinet	1411422B	Gold, Models 1600, 1601
Cabinet	141138B	Gold, Model 1602
Cabinet	141145B	Gold, Models 1604, 1605
Cabinet	141122C	Turquoise, Models 1600, 1601
Cabinet	141138C	Turquoise, Model 1602
Cabinet	141145C	Turquoise, Models 1604, 1605
Cabinet	141122D	Luggage Tan, Models 1600, 1601
Cabinet	141138D	Luggage Tan, Model 1602
Cabinet	141145D	Luggage Tan, Models 1604, 1605
Cabinet	141122E	Ebony, Models 1600, 1601
Cabinet	141138E	Ebony, Model 1602
Cabinet	141145E	Ebony, Models 1604, 1605
Cabinet	141131A	Mahogany, Model 1608
Cabinet	141140A	Mahogany, Models 1609, 1610
Cabinet	141131	Walnut, Model 1608
Cabinet	141140	Walnut, Models 1609, 1610
Cabinet	141125	Walnut, Model 1612
Cabinet	141139	Walnut, Models 1613, 1614
Cabinet	141155	Walnut, Model 1622
Cabinet	141154	Walnut, Models 1623, 1624
Cabinet	141131B	Limed Oak, Model 1608
Cabinet	141140B	Limed Oak, Models 1609, 1610

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 7 IN SET 503		COLUMBIA MODELS C1455, C1457
	Columbia Models C1012B, C1012G, C1148B, C1148M, C1148W were covered in PHOTOFACT Folder 7 - Set 503. Models C1455, C1457 are electrically similar except for the following changes.	
Model C1455	COMPONENT CHANGES M1 (Silicon Rectifier) is changed to Part #10G623. R4 (Bass Tone Control) is changed to Part #9G643. R18 is decreased from 47Ω 2 watt to 22Ω 1 watt.	
Model C1457	COMPONENT CHANGES M1 (Silicon Rectifier) is changed to Part #10G623. R4 (Bass Tone Control) is changed to Part #9G643. R18 is decreased from 47Ω 2 watt to 22Ω 1 watt. SPEAKER CHANGES This Model uses a right remote speaker enclosure as well as a left remote speaker enclosure. A partial schematic diagram showing the changes is given in this bulletin.	

(Continued On The Reverse Side)



CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knobs	8G522	Control, Model C1455
Knobs	8G555	Control, Model C1457
Cabinet	17G137	Walnut, Model C1455
Cabinet	17G138	Mahogany, Model C1455
Cabinet	17G139	Blonde, Model C1455
Cabinet	17G140	Walnut, Model C1455 (Speaker Enclosure)
Cabinet	17G141	Mahogany, Model C1455 (Speaker Enclosure)
Cabinet	17G142	Blonde, Model C1455 (Speaker Enclosure)
Cabinet	17G131	Mahogany, Model C1457
Cabinet	17G132	Blonde, Model C1457
Cabinet	17G133	Walnut, Model C1457
Cabinet	17G134	Mahogany, Model C1457 (Speaker Enclosure)
Cabinet	17G135	Blonde, Model C1457 (Speaker Enclosure)
Cabinet	17G136	Walnut, Model C1457 (Speaker Enclosure)
Cabinet Leg	18G879	Mahogany, Model C1455
Cabinet Leg	18G880	Blonde, Model C1455
Cabinet Leg	18G881	Walnut, Model C1455
Cabinet Leg	18G867	Mahogany, Model C1457
Cabinet Leg	18G868	Blonde, Model C1457
Cabinet Leg	18G869	Walnut, Model C1457

PHOTOFACT® Folder

SETCHELL-CARLSON
MODEL P67 (Ch. C106A)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SETCHELL-CARLSON
MODEL P67 (Ch. C106A)

SETCHELL-CARLSON
MODEL P67 (Ch. C106A)

MODEL P67 (CH. C106A)

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SETCHELL-CARLSON MODEL P67 (Ch. C106A)

SETCHELL-CARLSON MODEL P67 (Ch. C106A)

MODEL P67 (CH. C106A)

TRADE NAME	Setchell-Carlson Model P67 (Ch. C106A)
MANUFACTURER	Setchell-Carlson Inc., New Brighton, Minn.
TYPE SET	Portable Television Receiver
TUBES	VHF - Seventeen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 125 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 6 screws holding trim strip; 2 on top, 2 at bottom and 1 on each side. Remove trim strip and safety glass.

FUSE

One fuse is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

FUSE DEVICE

A fuse wire is used for filament protection. (For location, see M4 in photo "Chassis Bottom View - Capacitor & Misc. Ident.")

TUNER OSCILLATOR ADJUSTMENT

To touch up VHF Oscillator it is necessary to remove all knobs and plate on top of cabinet.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency is adjusted by means of a Horizontal Hold Control. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (All) located at top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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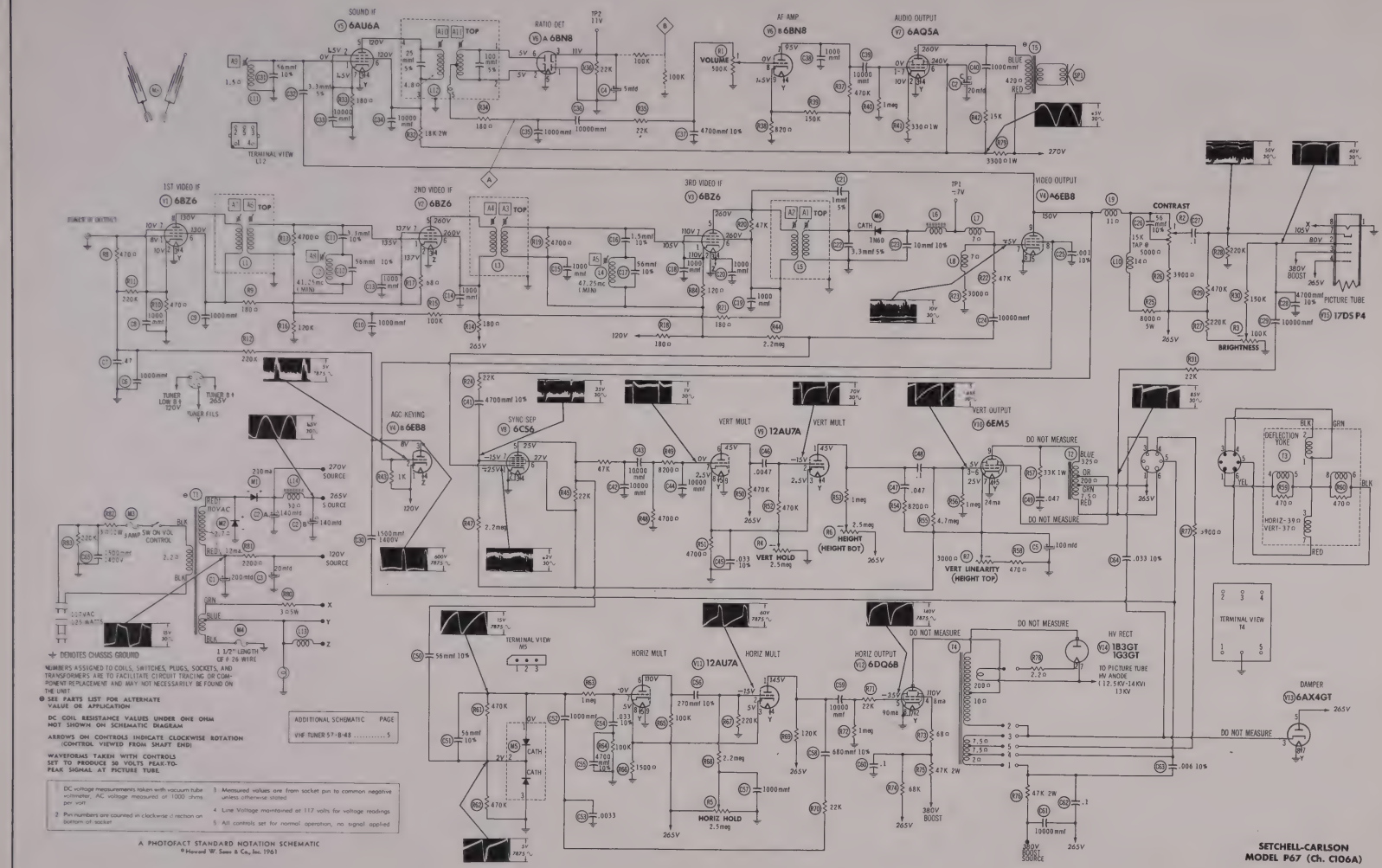
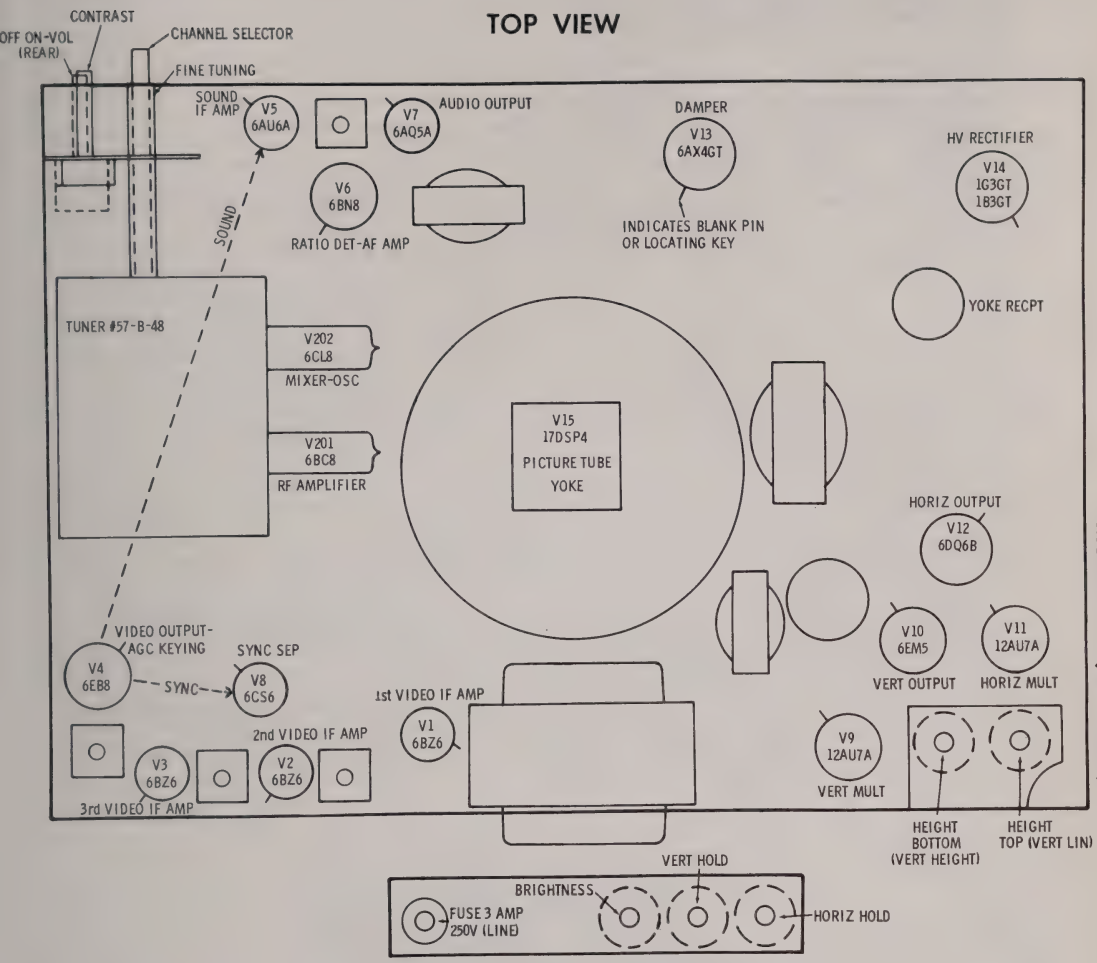

SOUND IF
6AU6A
RATIO DET
6BN8
AF-AMP
6BN8
AUDIO OUTPUT
6AQ5A
VOLUME
500K
1ST VIDEO IF
6BZ6
2ND VIDEO IF
6BZ6
3RD VIDEO IF
6BZ6
VIDEO OUTPUT
6AE8B
CONTRAST
BRIGHTNESS
PICTURE TUBE
17DS P4
AGC KEYING
6EB8
SYNC SEP
6CS6
VERT MULT
12AU7A
VERT MULT
VERT OUTPUT
6EM5
DO NOT MEASURE
HEIGHT
(HEIGHT BOT)
VERT HOLD
2.5meg
VERT LINEARITY
(HEIGHT TOP)
HORIZ MULT
12AU7A
HORIZ MULT
HORIZ OUTPUT
6DQ6B
HORIZ HOLD
2.5meg
HV RECT
1B3GT
1G3GT
DAMPER
6AX4GT
380V BOOST
TERMINAL VIEW
L12
TERMINAL VIEW
M5
TERMINAL VIEW
T4
DENOTES CHASSIS GROUND
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
ADDITIONAL SCHEMATIC PAGE
VHF TUNER 57-B-48 5
DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
Pwr numbers are counted in clockwise direction on bottom of socket
Measured values are from socket pin to common negative unless otherwise stated
Line Voltage maintained at 117 volts for voltage readings
All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961
SETCHELL-CARLSON
MODEL P67 (Ch. C106A)

TUBE PLACEMENT CHART

TOP VIEW



SETCHELL-CARLSON
MODEL P67 (Ch. C106A)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V15
No vertical deflection V9, V10
Poor vert. linearity or foldover V9, V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, Rectifiers (B+)
Vert. off freq. V9
Horiz. off freq. Diodes (Horiz. AFC), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V5, V6, V7
Overloaded picture V4

SYNC FAILURE
No vert. sync V8
No horiz. sync V8
No vert. or horiz. sync V8

FOLDER 1

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001 mfd to pin 1 (grid) of 3rd Video IF. Low side to chassis.	44MC	42.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to TP-1. Low side to chassis.	A1, A2,	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	High side thru .001 mfd to pin 1 (grid) of 2nd Video IF. Low side to chassis.	"	42.25MC 45.75MC 47.25MC	"	"	A3, A4, A5	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust A5 to place 47.25MC marker in trap notch.
3.	High side thru .001 mfd to pin 1 (grid) of 1st Video IF. Low side to chassis.	"	41.25MC 42.25MC 45.75MC	"	"	A6, A7, A8	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust A8 to place 41.25MC marker in trap notch.
4.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	42.25MC 45.75MC	"	"	Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point TP-2 to chassis. The junction of these two resistors is alignment point Ⓑ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .01 mfd to TP-1. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe to TP-2. Common to chassis.	A9, A10	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓐ. Common to Point Ⓑ.	All	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

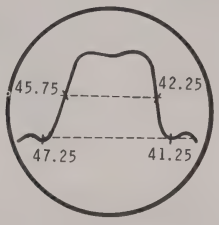
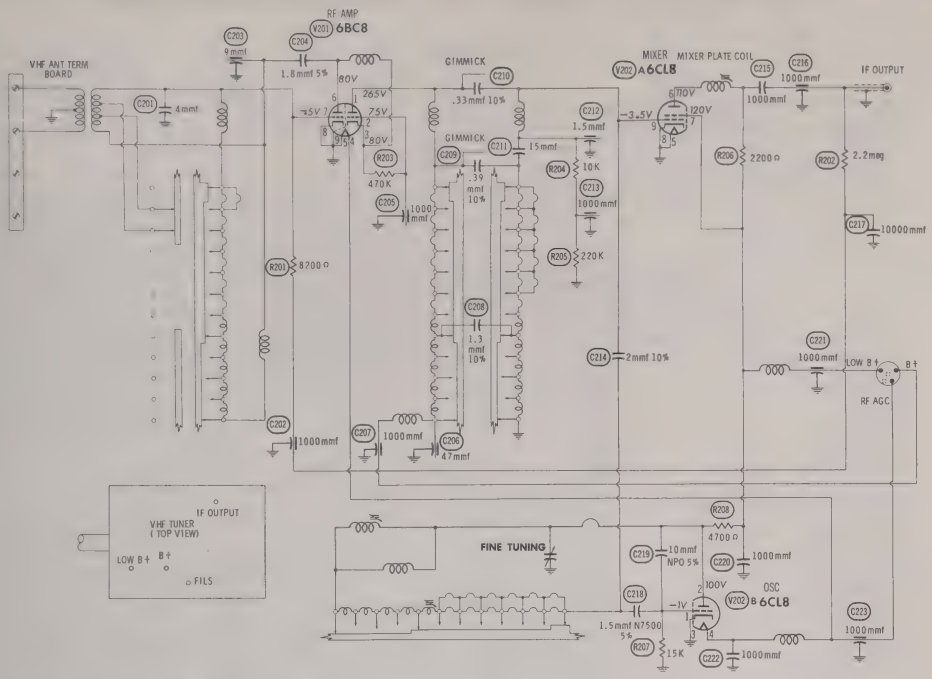


FIG.1



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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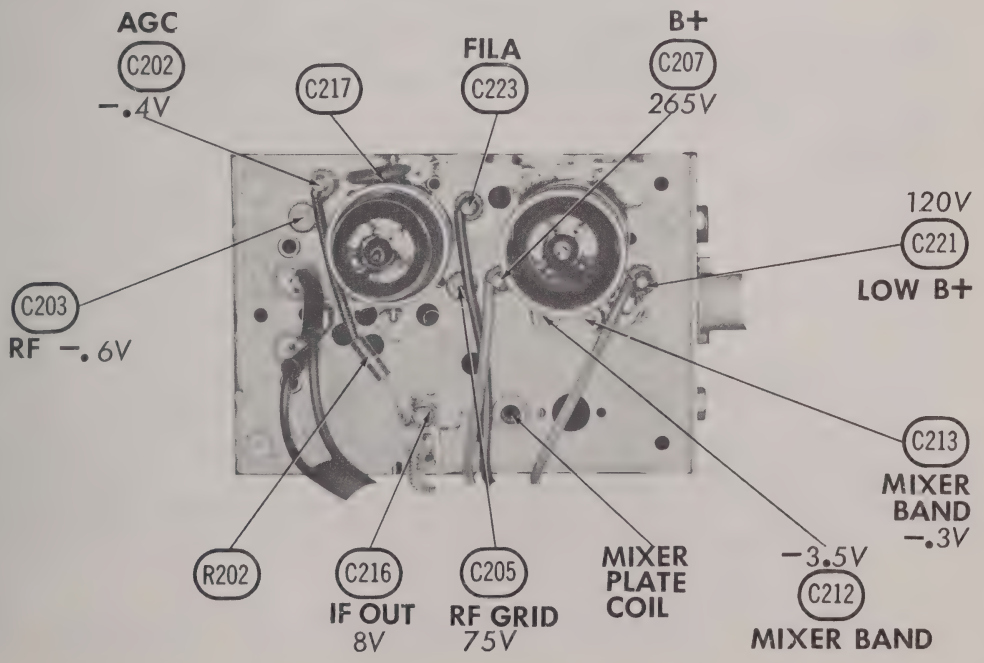
VHF TUNER 57-B-48



VHF TUNER 57-B-48 - TOP VIEW

VHF TUNER PARTS LIST AND DESCRIPTIONS

57-B-48

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •			• SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amplifier	6BC8	V202	Mixer - Osc.	6CL8			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	4				C10V4C			10TCC-V39
C202	1000		EF-001	MFT-1000		CCF-102	CT280A	
C203	9							
C204	1.8 5%				C10V2C			10TCC-V18
C205	1000		EF-001	MFT-1000		CCF-102	CT280A	
C206	47							
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.3 10%		NPO-SI 1.5	TCZ-1R5		CCTO-1R5	CNO-515	10TCC-V15
C209	.39 10%							
C210	.33 10%							
C211	15		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C212	1.5							
C213	1000		EF-001	MFT-1000		CCF-102	CT280A	
C214	2 10%		NPO-SI 2.2	TCZ-2R2	C10V2C	CCTO-2R2		10TCC-V22
C215	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C218	1.5 N7500 5%							
C219	10 NPO 5%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C220	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	
C222	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	8200Ω				R205	220K			
R202	2.2meg				R206	2200Ω			
R203	470K				R207	15K			
R204	10K				R208	4700Ω			

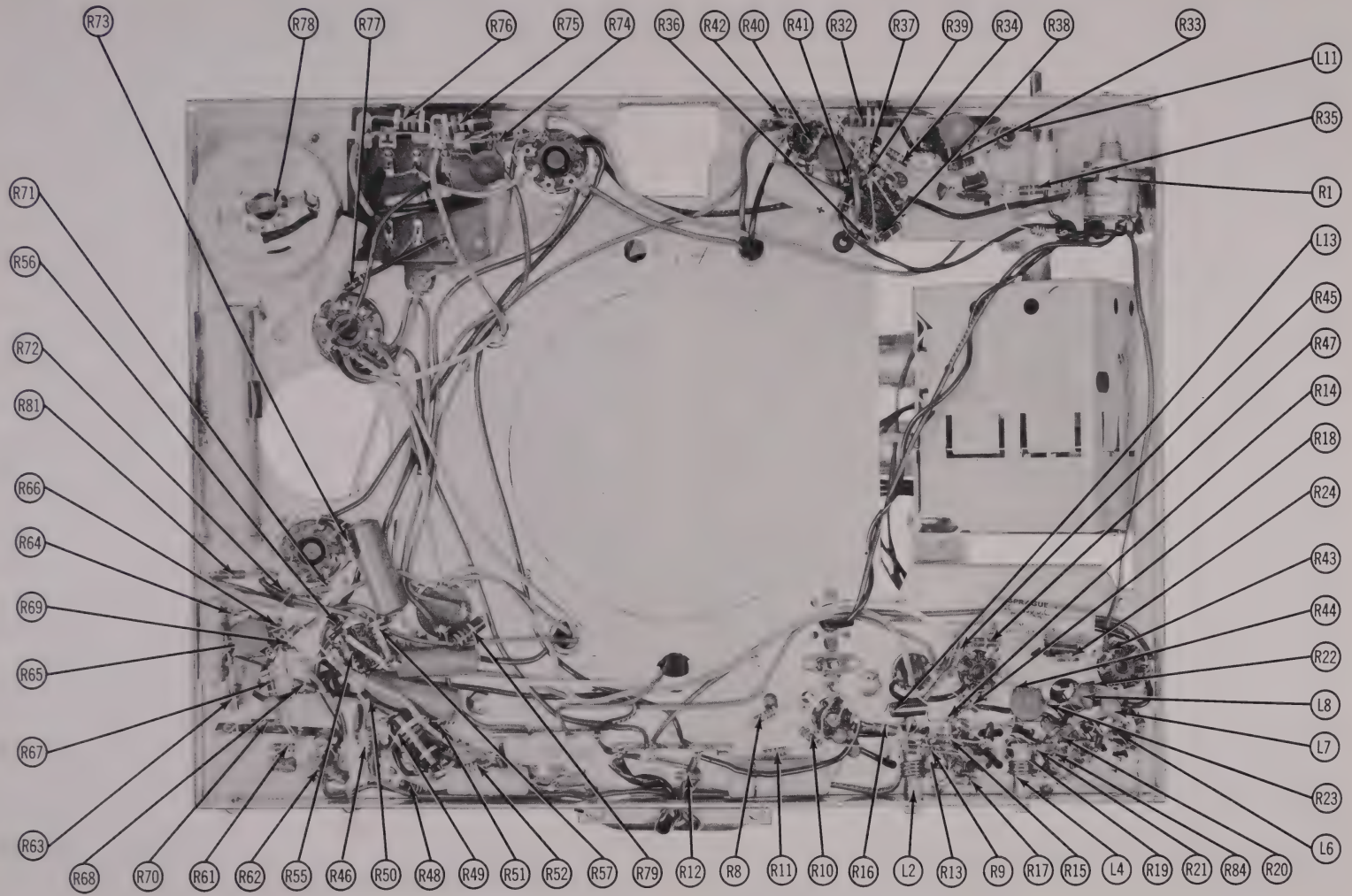
VHF TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range. One slug for high band adjustment is located at 2 o'clock, and should be adjusted first. The low band adjustment is located at 6 o'clock. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • USE	TYPE	ITEM No.	RAYTHEON • USE	TYPE	ITEM No.	SYLVANIA • USE	TYPE
V1	1st Video IF Amp	6BZ6	V8	Sync Sep	6C96	V15	Vert. Mult	12AU7A
V2	2nd Video IF Amp	6BZ6	V9	Vert. Mult	12AU7A	V16	Vert. Output	6EM5
V3	3rd Video IF Amp	6BZ6	V10	Vert. Output	6EM5	V17	Horiz. Mult.	12AU7A
V4	Video Output - AGC Keying	6EB8	V11	Horiz. Mult.	12AU7A	V18	Horiz. Output	6LQ6B
V5	Sound IF Amp	6AU8A	V12	Horiz. Output	6LQ6B	V19	Damper	6AX4GT
V6	Ratio Det. - AF Amp	6BN8	V13	Damper	6AX4GT	V20	Rectifier	1G3GT,1B3GT
V7	Audio Output	6AQ5A	V14	HV Rectifier	1G3GT,1B3GT			

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: Setchell-Carlson PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V15	17DSP4	17DSP4 ①	17DSP4 ①		17DSP4 ②	① Aluminized ② Silver Screen "B5"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: Setchell-Carlson PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	200	200		PRI-075	BR20025	WS342	TD-200-200	TVA-1480	
C2A	40	350		AFH3-29-98	DO046	WP332.44		TVL5-3648 *	
B	40	350			*BR10035				
C	20	350							
C3	20	150		PRS240	BBR20-150	TC45	TD-20-150	TVA-1410	
C4	5	50		PRS310	BBR5-50	TC50	TD-5-50	TVA-1303	
C5	100	50		PRS360	BR1905	TC3501	TD-100-50	TVA-1310	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	1000			BPD-301	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C7	47	200V		P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C8	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C9	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C10	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C11	3 3	10%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C12	56	10%		1469-000056	TCZ-56	22R5Q56	CM-19B-560K	CNO-456	MS-456
C13	1000			BPD-001	DD-103	BYA10DI	CCD-103	B-210	5HK-D10
C14	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C15	1000			BPD-001	DD-103	BYA10DI	CCD-102	B-210	5HK-D10
C16	1.5	10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C17	56	10%		1469-000056	TCZ-56	22R5Q56	CM-19B-560K	CNO-456	MS-456
C18	1000			BPD-001	DD-102	BYA10DI	CCD-103	B-210	5HK-D10
C19	1000			BPD-001	DD-102	BYA10DI	CCD-103	B-210	5HK-D10
C20	1000			BPD-001	DD-102	BYA10DI	CCD-103	B-210	5HK-D10
C21		5%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C22	3 3	5%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C23	10	10%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C24	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C25	.001	400V 10%		V84C81X-10%	DD-102	PME2I	6DP-1-102	GP210	6TM-D10
C26	56	10%		1469-000056	TCZ-56	22R5Q56	CM-19B-560K	CNO-456	MS-456
C27	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C28	4700	10%		DE-4700		PME247	CCD-473	JL-247	10TS-D47
C29	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C30	1500	1400V		HVD-15-1500	DD30-152	HVC15X5	3CCD-152	2HV-215	30GA-D15
C31	56	10%		1469-000056	TCZ-56	22R5Q56	CM-19B-560K	CNO-456	MS-456
C32	3 3	5%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C33	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C34	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C35	1000			BPD-001	DD-102	BYA10DI	CCD-103	B-210	5HK-D10
C36	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C37	4700	10%		DE-4700		PME247	CCD-472	JL-247	10TS-D47
C38	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C39	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C40	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C41	4700	10%		DE-4700		PME247	CCD-472	JL-247	10TS-D47
C42	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C43	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C44	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C45	.033	600V 10%		V84C8333-10%		PM8333	6DP-3-333	GEM-1613	6TM-S33
C46	.0047	400V		P488N-0047		DE-472	CUB6D47	6DP-1-472	GEM-6247
C47	.047	400V		P488N-047		DU-S03	CUB4S47	4DP-3-473	GEM-4147
C48	.1	400V		P488N-1		DF-104	CUB4P1	4DP-3-104	GEM-401
C49	.047	400V		P488N-047		DU-S03	CUB4S47	4DP-3-473	GEM-4147
C50	56	10%		1469-000056		TCZ-56	22R5Q56	CM-19B-560K	CNO-456
C51	56	10%		1469-000056		TCZ-56	22R5Q56	CM-19B-560K	CNO-456
C52	1000			BPD-001		DD-102	BYA10DI	CCD-102	B-210
C53	.033	400V		P488N-0033		DE-332	CUB6D33	6DP-1-332	GEM-6233
C54	.033	600V 10%		V84C8333-10%			PM8333	6DP-3-333	GEM-1613
C55	4700	10%		DE-4700			PME247	CCD-472	JL-247
C56	270	10%		1469-00027		TCZ-270	22R5Y27	CM-19B-271K	CNO-327
C57	1000			BPD-001		DD-102	BYA10DI	CCD-102	B-210
C58	680	10%		1469-00068			5HST68	CM-19B-681K	MCU249
C59	10000			BPD-01		DD-103	BYA10SI	CCD-102	B-110
C60	.1	400V		P488N-1		DF-104	CUB4P1	4DP-3-104	GEM-401
C61	10000			BPD-01		DD-103	BYA10SI	CCD-103	B-110
C62	.1	600V		P888N-1		DF-104	CUB6P1	6DP-4-104	GEM-601
C63	008	600V 10%					P8S06	6DP-1-803	GEM-1626
C64	.033	600V 10%		V84C8333-10%			PM8333	6DP-3-333	GEM-1613
C65	1500	1400V		HVD-15-1500		DD30-152	HVC15X5	3CCD-152	2HV-215

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: Setchell-Carlson PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	816	B-80-S	A47-500K-Z	Q23-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWF-12	76-1	US-25	Power Off-On
R2	15K	½	811	BT-154		Q23-118XX		Contrast
	5000Ω Tap			*		*		
R3A	100K	½	802	BX-40	A47-100K-S	B11-128	SU-41	Brightness
B	Shaft			Not Req.	FKS-1-4	SK8	Not Req.	
R4A	2.5meg	½	803	BX-83	A47-2.5meg-S	B11-239	SU-565	Vert. Hold
B	Shaft			Not Req.	FKS-1-4	SK8	Not Req.	
R5A	2.5meg	½	803	BX-83	A47-2.5meg-S	B11-239	SU-565	Horiz. Hold
B	Shaft			Not Req.	FKS-1-4	SK8	Not Req.	
R6A	2.5meg	½	803	BX-83	A47-2.5meg-S	B11-239	SU-565	Height (Height Bottom)
B	Shaft			Not Req.	FKS-1-4	SK8	Not Req.	
R7A	3000Ω	½	801	AB-8	A47-3000-S	B11-112	SU-8	Vert. Linearity (Height Top)
B	Shaft			AK-4	FKS-1/4	SK6	Not Req.	

* Use 5000Ω Tap.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R8	470Ω			
R9	180Ω			
R10	470Ω			
R11	220K			
R12	220K			
R13	4700Ω			
R14	180Ω			
R15	100K			
R16	120K			
R17	68Ω			
R18	180Ω			
R19	4700Ω			
R20	47K			
R21	180Ω			
R22	47K			
R23	3000Ω			
R24	22K			
R25	8000Ω 5W	PW5-8000	5W-SQ-8000	
R26	3900Ω			
R27	220K			
R28	220K			
R29	470K			
R30	150K			
R31	22K			
R32	18K 2W			
R33	180Ω			
R34	180Ω			
R35	22K			
R36	22K			
R37	470K			
R38	820Ω			
R39	150K			
R40	1meg			
R41	330Ω 1W			
R42	15K			
R43	1000Ω			
R44	2.2meg			
R45	22K			
R46	47K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R47	2.2meg			
R48	4700Ω			
R49	8200Ω			
R50	470K			
R51	4700Ω			
R52	470K			
R53	1meg			
R54	8200Ω			
R55	4.7meg			
R56	1meg			
R57	33K 1W			
R58	470Ω			
R59	470Ω			
R60	470Ω			
R61	470K			
R62	470K			
R63	1meg			
R64	100K			
R65	100K			
R66	1500Ω			
R67	220K			
R68	2.2meg			
R69	120K			
R70	22K			
R71	22K			
R72	1meg			
R73	68Ω			
R74	68K			
R75	47K 2W			
R76	47K 2W			
R77	3900Ω			
R78	2.2Ω			
R79	3300Ω 1W			
R80	3Ω 5W	PW5-3	5W-SQ-3	
R81	2200Ω			
R82	3Ω 10W	PW10-3	10W-SQ-3	
R83	220K			
R84	120Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	1st Video IF						
L2	41.25MC Trap		TV-131	6225	RTC-8556	T218	
L3	2nd Video IF						
L4	47.25MC Trap		TV-153	6225	RTC-8556	T218	
L5	3rd Video IF						
L6	RF Choke (12uh)		BC-566	4622	RTC-8523	T862	
L7	Peaking (225uh)		TV-185	6181	RTC-8598	T315	
L8	Peaking (225uh)		TV-185	6181	RTC-8598	T315	
L9	Peaking (300uh)		TV-199	6155	RTC-8587	T318	
L10	Peaking (400uh)		TV-203	6136	RTC-8579	T322	
L11	Sound IF		TV-151	1470	RTC-8603	T250	
L12	Ratio Detector		TV-115	6271	RTC-8620	T237	
L13	Fil. Choke (15uh)		BC-562	4604	RTC-8516	T256	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE 10 CURRENT 1000 (%)	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L14	.170A	30Ω	.75 Hy.	LM122				C-36X	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ 1.2A	110V @ .750A AC	8V @ 2.6A Tap @ 6.3V @ 8A	M1018A ET ①					① Alternate Part #TM1192

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output		A-2852 ①	PCM-1834 ② ③	VO-100 ④ DY-46A ③ ④	26J13 Y-53 ② ③	A-142X Y-62 & NW20	
T3	Yoke (Horiz. 21MH) (110°) (Vert. 35MH) Rear Cover and Centering Device							
T4	Horiz. Output							

① Drill new mounting holes.
② Use original rear cover and centering device.
③ Use original yoke damping network if necessary.
④ Use original yoke plug. Connect yoke terminal #3 to yoke plug #3, yoke terminals #2 and #7 to yoke plug pin #4, yoke terminal #1 to yoke plug #5, yoke terminal #6 to yoke plug #6, yoke terminal #4 to yoke plug pin #1.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: Setchell-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	6500Ω	3-4Ω	S10288C ①	A-2931	A-3878	26J52	S-42X	① Alternate Part #TM10288C

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: Setchell-Carlson PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	W110	5A15	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: Setchell-Carlson PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.210A	*	1N1763 *	40H *	8R500 *	* Silicon
M2	.210A	*	1N1763 *	40H *	8R500 *	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Setchell-Carlson PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M3	3AG	3A 250V			312003 (3AG 3A 250V)	342001	AGC 3	HKP
M4	1½"	length of #28 wire						

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: Setchell-Carlson PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M5	1N60		6GC1 *	1N60 †	1N60 †	* Dual Selenium (Common Cathode) † Video Detector (Pigtail)
M6						

MISCELLANEOUS

ITEM No.	PART NAME	REPLACEMENT DATA: Setchell-Carlson PART No.	NOTES
MT	Tuner (VHF)	57-B-48	STANDARD COIL REPLACEMENT #GG-4290-A
M8	Antenna	30094-1	2 Used, JFD REPLACEMENT #TA375

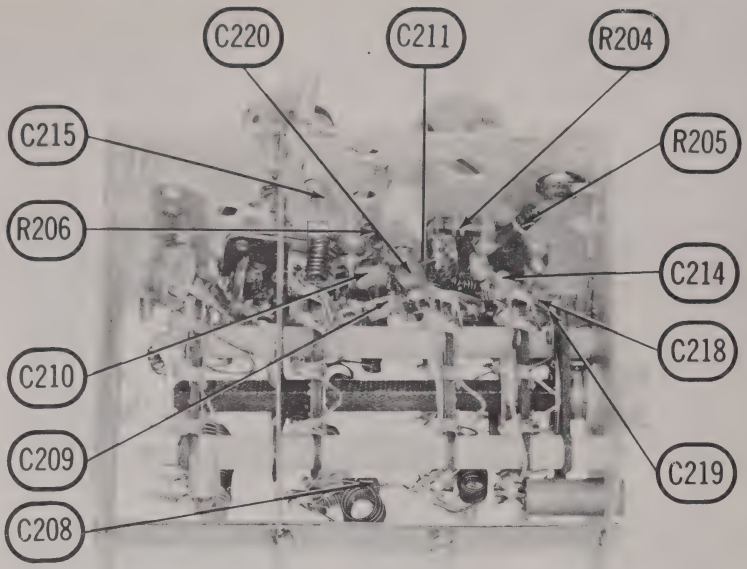
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

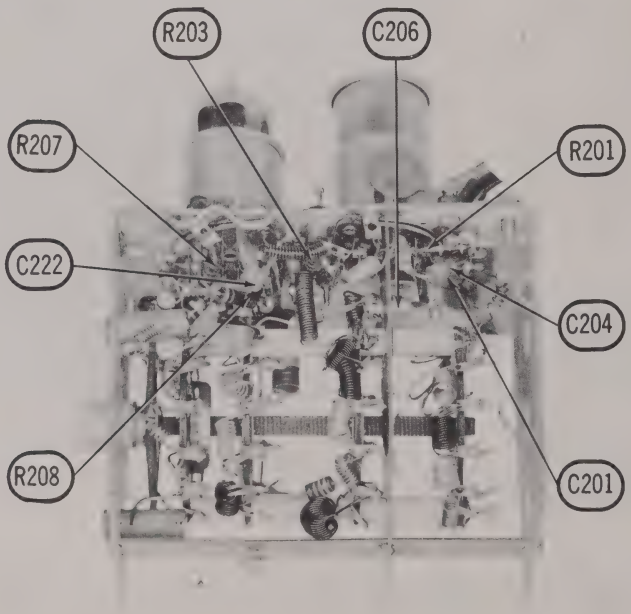
WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8498 (Round) - 8 Conductor

CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.

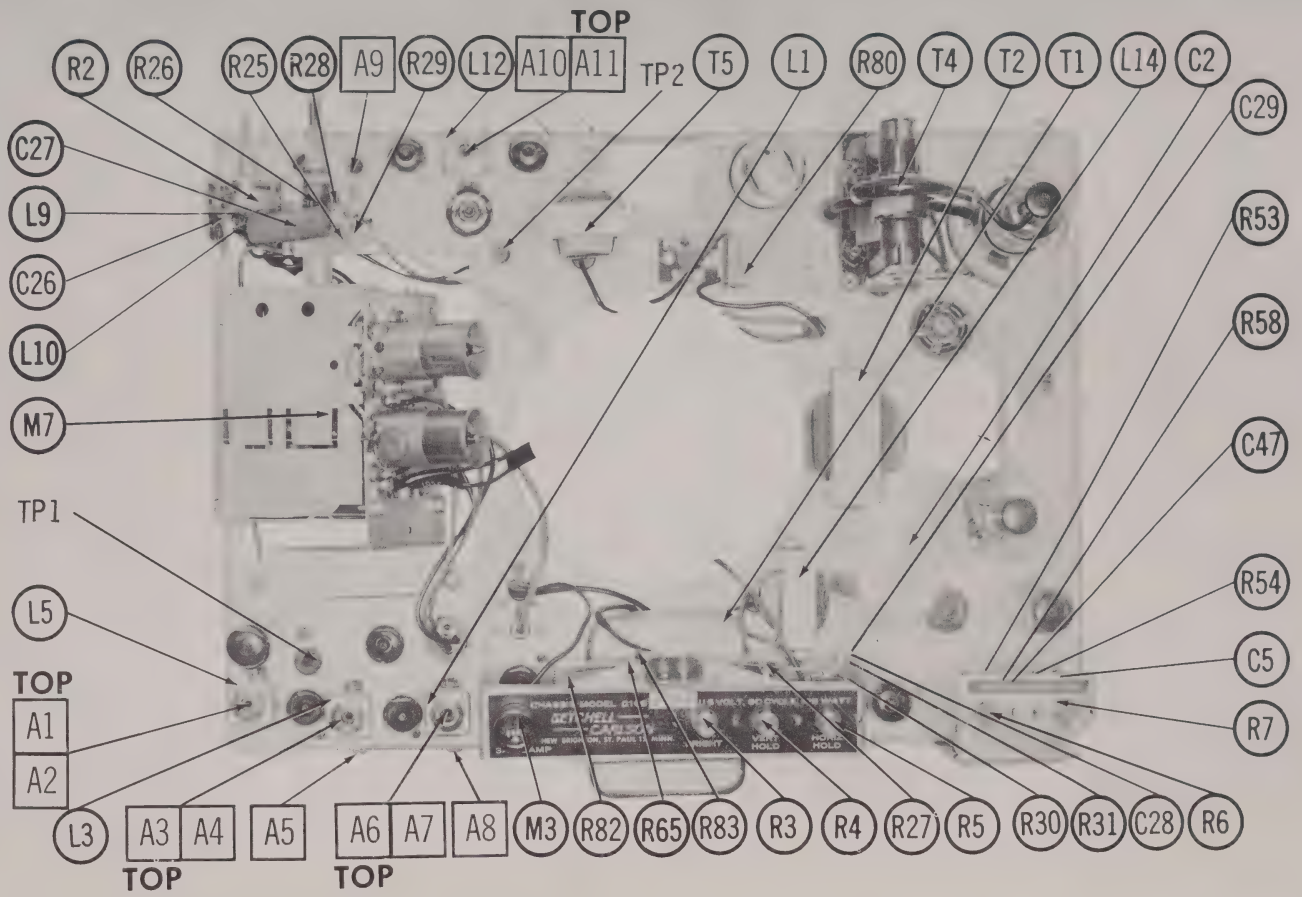


VHF TUNER 57-B-48 - LEFT SIDE



VHF TUNER 57-B-48 - RIGHT SIDE

TP1 -.7V VIDEO OUTPUT GRID
TP2 11V RATIO DET. CATHODE



CHASSIS - TOP VIEW

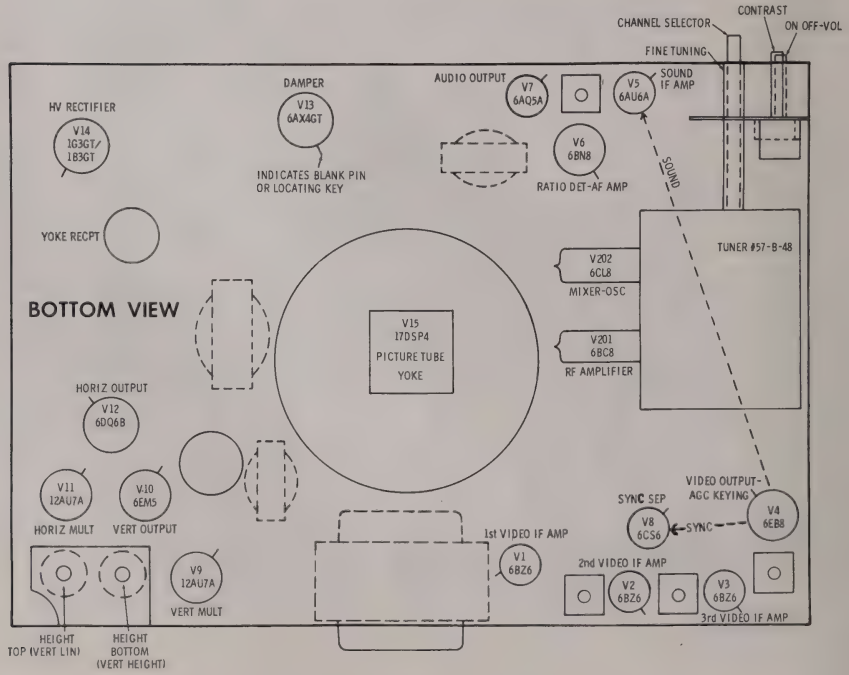
SETCHELL-CARLSON
MODEL P67 (Ch. C106A)

FOLDER 1

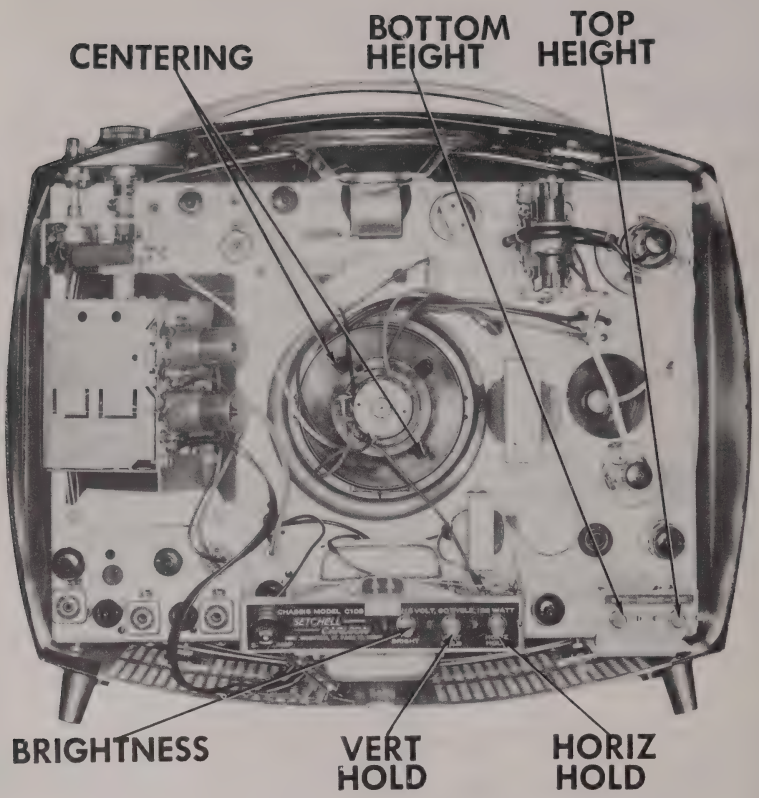
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	220K	470Ω	0Ω	.1Ω	▪ 248Ω	▪ 248Ω	470Ω		
V2	6BZ6	55K	INF	0Ω	.1Ω	†210Ω	†210Ω	▪68Ω		
V3	6BZ6	††2400Ω	††2500Ω	0Ω	.1Ω	†390Ω	†390Ω	††2500Ω		
V4	6EB8	††2200Ω	††3200Ω	440K	.1Ω	0Ω	0Ω	3000Ω	††3200Ω	†4000Ω
V5	6AU6A	1.5Ω	180Ω	0Ω	.1Ω	†21K	†21K	180Ω		
V6	6BN8	0Ω	INF	22K	.1Ω	0Ω	INF	†470K	●200Ω	820Ω
V7	6AQ5A	NC	330Ω	0Ω	.1Ω	†420Ω	†3300Ω	1meg		
V8	6CS6	††2.2meg	0Ω	0Ω	.1Ω	23K	●1100Ω	2.2meg		
V9	12AU7A	●†2.5meg	●1.5meg	4700Ω	.1Ω	.1Ω	†470K	13K	4700Ω	0Ω
V10	6EM5	†230Ω	NC	1meg	0Ω	.1Ω	1meg	●1100Ω	NC	†555Ω
V11	12AU7A	†120K	200K	1500Ω	.1Ω	.1Ω	†100K	2meg	1500Ω	0Ω
V12	6DQ6B	NC	.1Ω	TP	†68K	1meg	TP	0Ω	0Ω	TOP CAP †10Ω
V13	6AX4GT	TP	NC	†150K	NC	†30Ω	NC	.1Ω	0Ω	
V14	1G3GT/ 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †210Ω
V15	17DSP4	0Ω	●200K	†47K	†30Ω	NC	NC	●150K	1.3Ω	
V201	6BC8	†30Ω	▲470K	▲0Ω	.1Ω	0Ω	INF	2.2meg	0Ω	0Ω
V202	6CL8	15K	††6900Ω	0Ω	.1Ω	0Ω	††4400Ω	††2200Ω	0Ω	210K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
†† MEASURED FROM JUNCTION OF C1 & R81.
ϟ MEASURED FROM PIN 3 OF V13.
▪ MEASURED FROM PIN 2 OF V2.
▲ MEASURED FROM PIN 6 OF V201.
NC NO CONNECTION TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station. Adjust the Horizontal Hold Control until the picture synchronizes horizontally. If the control must be turned to either extreme to synchronize the picture, or if slow warm-up causes frequency drift, replace the Horizontal Multivibrator Tube and readjust the Horizontal Hold Control.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from top of cabinet.
2. Remove knob plate.
3. Remove 6 metal screws holding rear cover. Remove cover.
4. Disconnect yoke plug, picture tube socket and hi voltage lead.
5. Remove screw from bottom left rear of cabinet.
6. Slide chassis from cabinet, removing left side first.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder with CIRCUITRACE®

SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 127 (CH. 101.60200)

SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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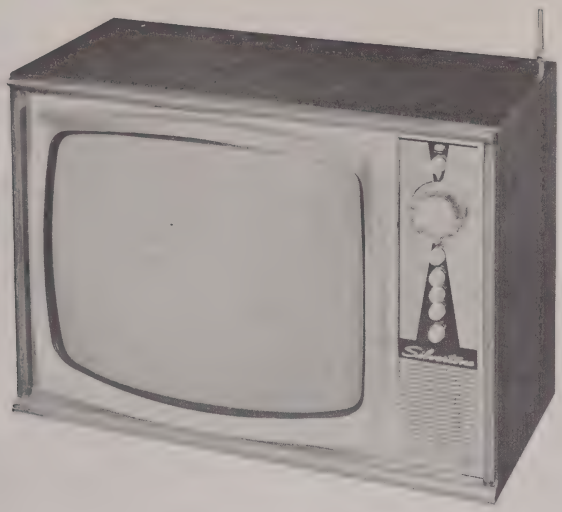
SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)



MODEL 127 (CH. 101.60200)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

TRADE NAME	SILVERTONE MODELS 122, 124, 126 (Ch. 101.60100) 123, 125, 127 (Ch. 101.60200)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	VHF - Sixteen, UHF - Seventeen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING UHF - 155 Watts, 1.5 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

The safety glass is an integral part of the picture tube.

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up VHF Oscillator, it is necessary to remove the tuner.

AGC

The AGC may be adjusted by means of an AGC Control. First tune in strongest channel in the area and set normal-strong switch to normal position. (For AGC Control and Switch location, see photo "Cabinet - Rear View".)

FOCUS

The focus may be varied by means of a Focus Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width Control. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A11) located at top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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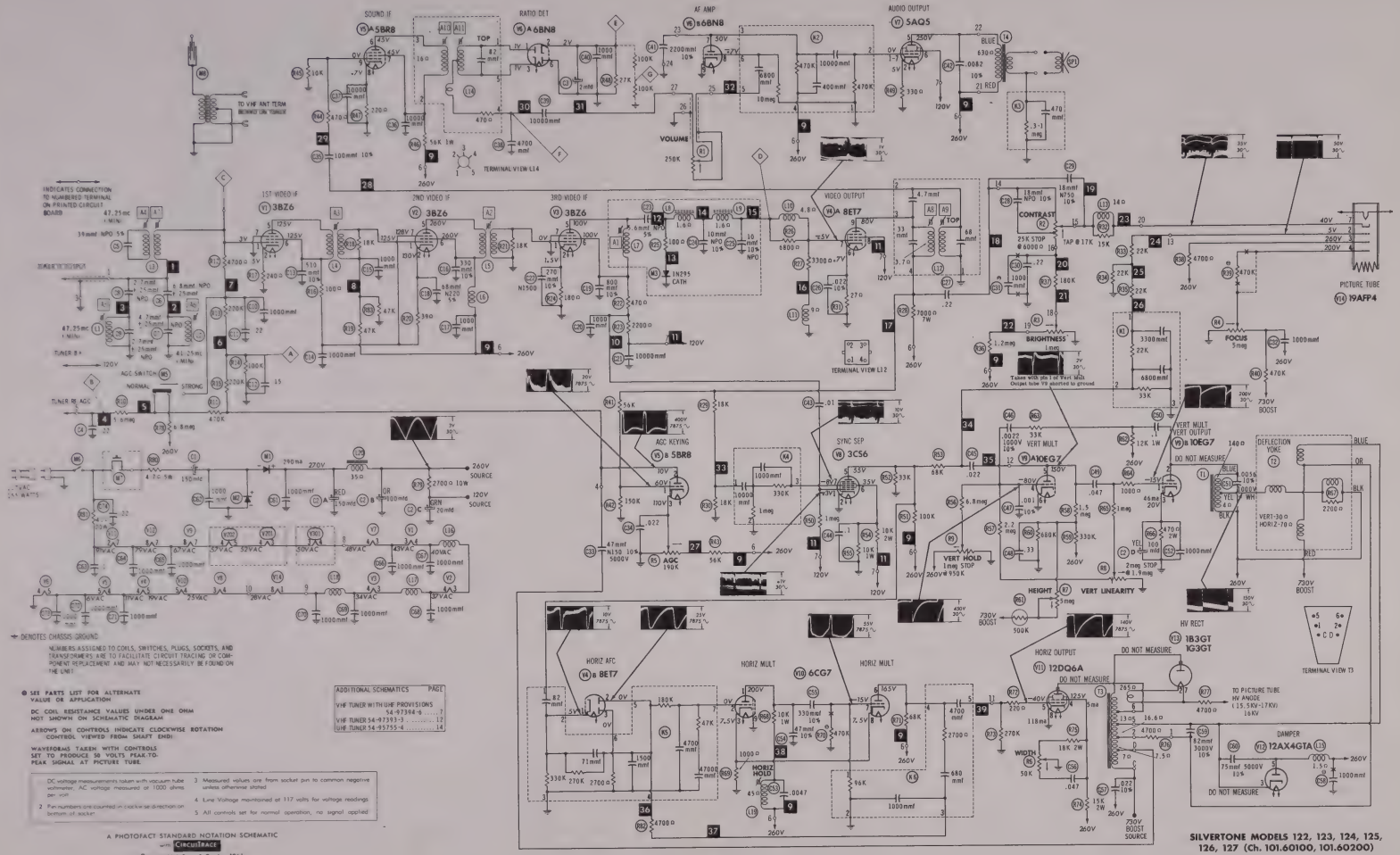
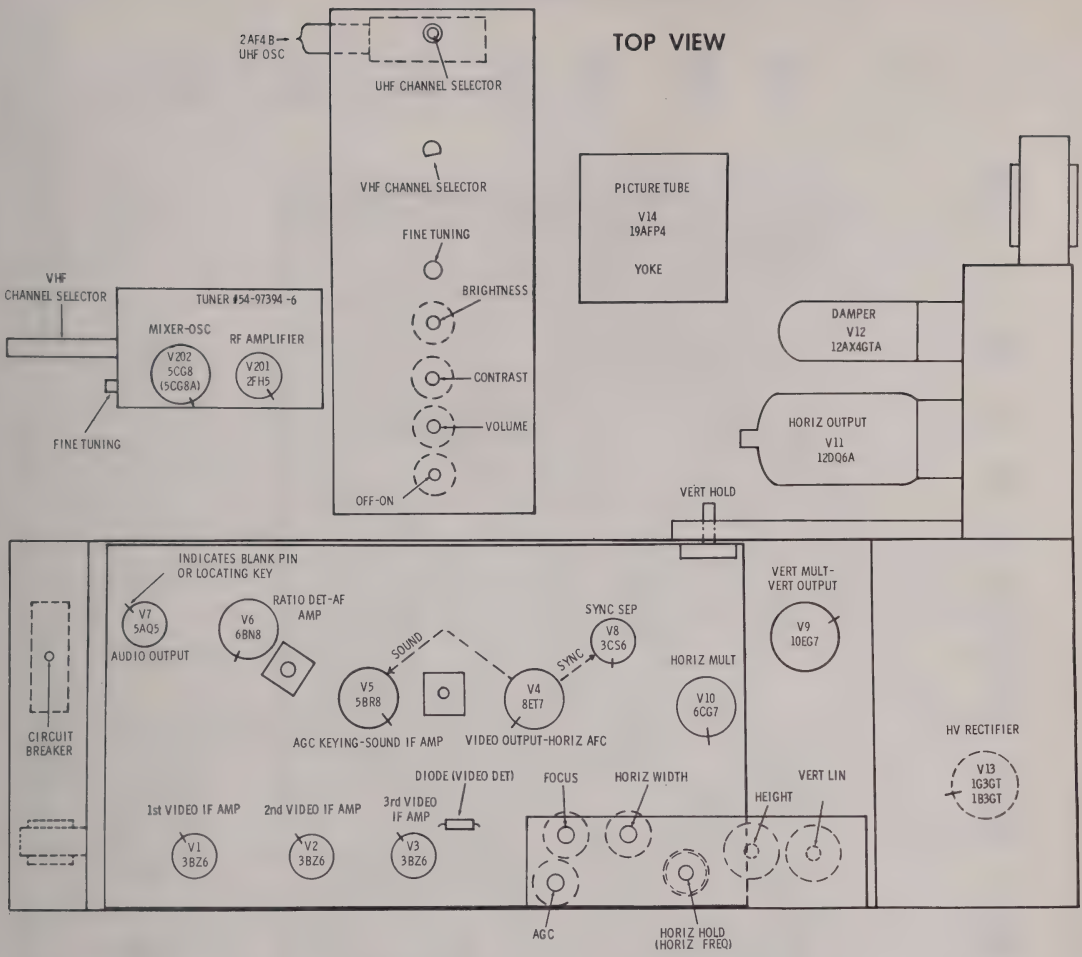
KA596


SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)
SOUND IF
RATIO DET
AF AMP
AUDIO OUTPUT
VOLUME
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
VIDEO OUTPUT
CONTRAST
BRIGHTNESS
FOCUS
PICTURE TUBE
AGC KEYING
SYNC SEP
VERT MULT
VERT OUTPUT
VERT HOLD
VERT LINEARITY
HEIGHT
DEFLECTION YOKE
HORIZ AFC
HORIZ MULT
HORIZ OUTPUT
HV RECT
WIDTH
HORIZ HOLD
DAMPER
TUNER B+
AGC SWITCH
TUNER RF AGC
TO VHF ANT TERM
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OF COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
CONTROL VIEWED FROM SHAFT END!
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
ADDITIONAL SCHEMATICS
VHF TUNER WITH UHF PROVISIONS 54-97304-6 7
VHF TUNER 54-97393-3 12
UHF TUNER 54-93755-4 14
1 DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket.
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
© Howard W. Sams & Co., Inc. 1961
SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

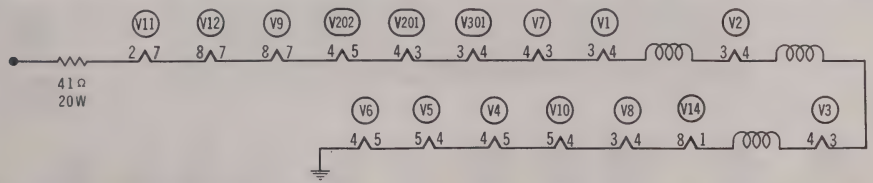
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rectifiers (B+)
Vert. off freq. V9
Horiz. off freq. V4, V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V301, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V5, V6, V7
Overloaded picture V5

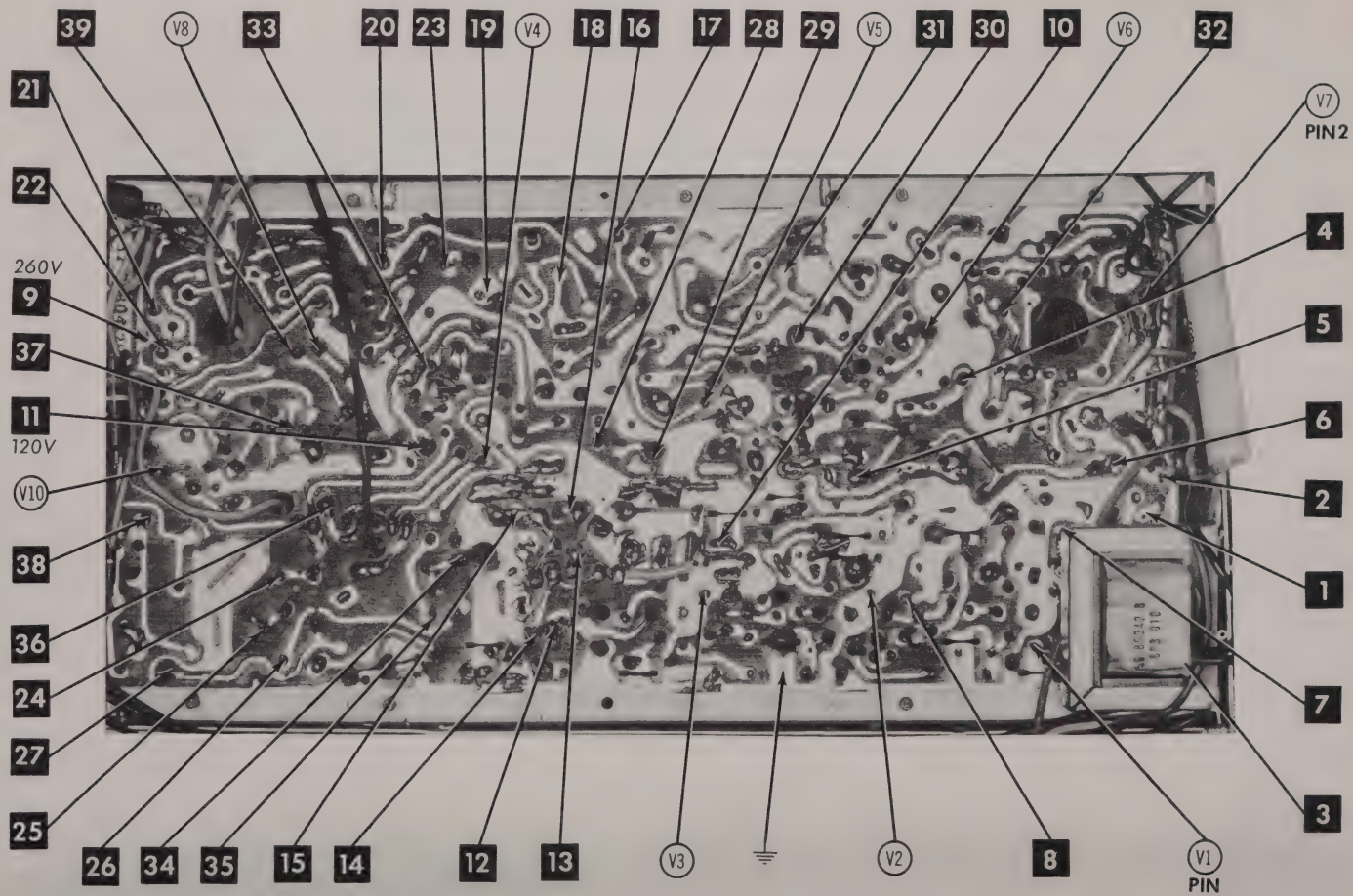
SYNC FAILURE
No vert. sync V8
No horiz. sync V8, V4
No vert. or horiz. sync V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

FOLDER 2



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage leadshould be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT # 8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3.5 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 25 volt bias supply to point (B). Positive to chassis.
If a separate marker generator is used, couple loosely to sweep generator output. Use low marker output. Keep all leads of generator and scope shielded and short as possible.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Detune Mixer Plate Coil by turning core fully counterclockwise. Detune A5.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .0047 mfd to point (C). Low side to chassis.	43.5MC (10MC Swp)	42.6MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 33K to point (D). Low side to chassis. (Across Video Det. load)	A1, A2, A3	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls top of curve. A2 controls placement of 45.75MC marker and A3 controls placement of 42.6MC marker.
2.	Place a thin insulated metal strip between the Mixer-Osc. tube (V202) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	47.25MC	"	"	A4, A5	Adjust for MINIMUM response at 47.25MC marker as in Fig. 2.
3.	"	"	41.25MC	"	"	A6	Adjust to place marker in trap notch as in Fig. 2.
4.	"	"	42.6MC 45.75MC	"	"	Mixer Plate Coil & A7	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.

4.5MC TRAP ALIGNMENT

Set Contrast fully clockwise.
Set Brightness fully counterclockwise.
Connect the negative lead of a 30 volt bias supply to point (A). Positive to chassis.
Connect a 4.5MC series tuned trap between pin 7 (cathode) of picture tube and chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .0047 mfd to point (D). Common to chassis. (Across Video Det. load)	4.5MC (Unmod)	Any non-interfering channel	RF probe across coil of 4.5MC series tuned circuit.	A8	Adjust for MINIMUM deflection.

ALTERNATE 4.5MC TRAP ALIGNMENT USING AIR SIGNAL

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A8 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (E) to chassis. The junction of these two resistors is alignment point (G) as shown on the schematic.
Connect the negative lead of a 30 volt bias supply to point (A). Positive to chassis.
Set Contrast fully clockwise.
Set Brightness fully counterclockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .0047 mfd to point (D). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 100K to point (E). Common to chassis.	A9, A10	Adjust for maximum deflection.
7.	"	"	"	DC probe thru 100K to point (F). Common to point (G).	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

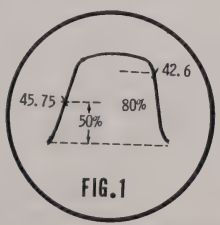


FIG. 1

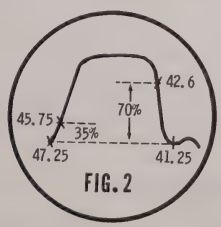
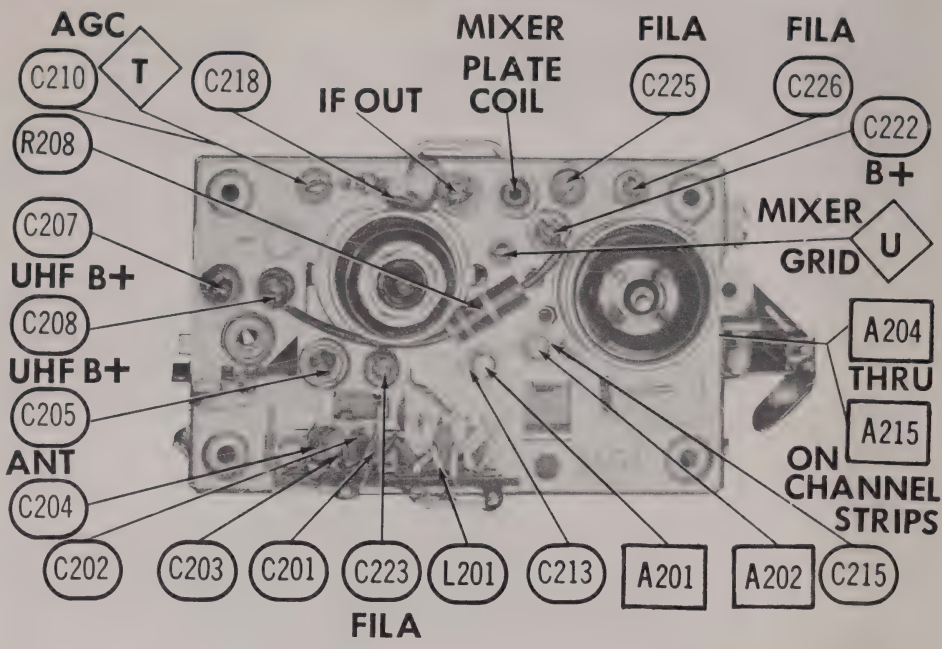


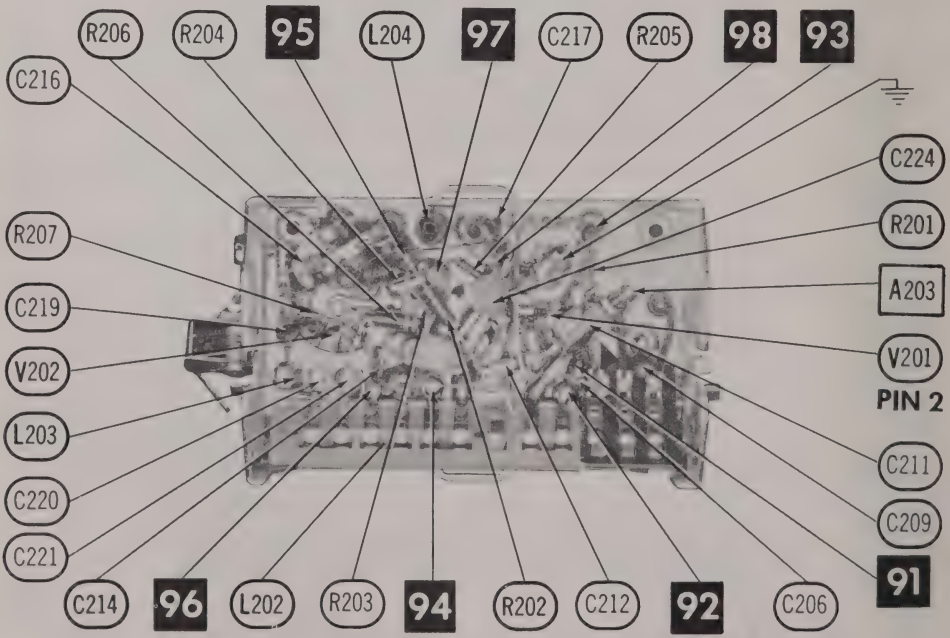
FIG. 2

SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

FOLDER 2



VHF TUNER WITH UHF PROVISIONS 54-97394-6 - TOP VIEW



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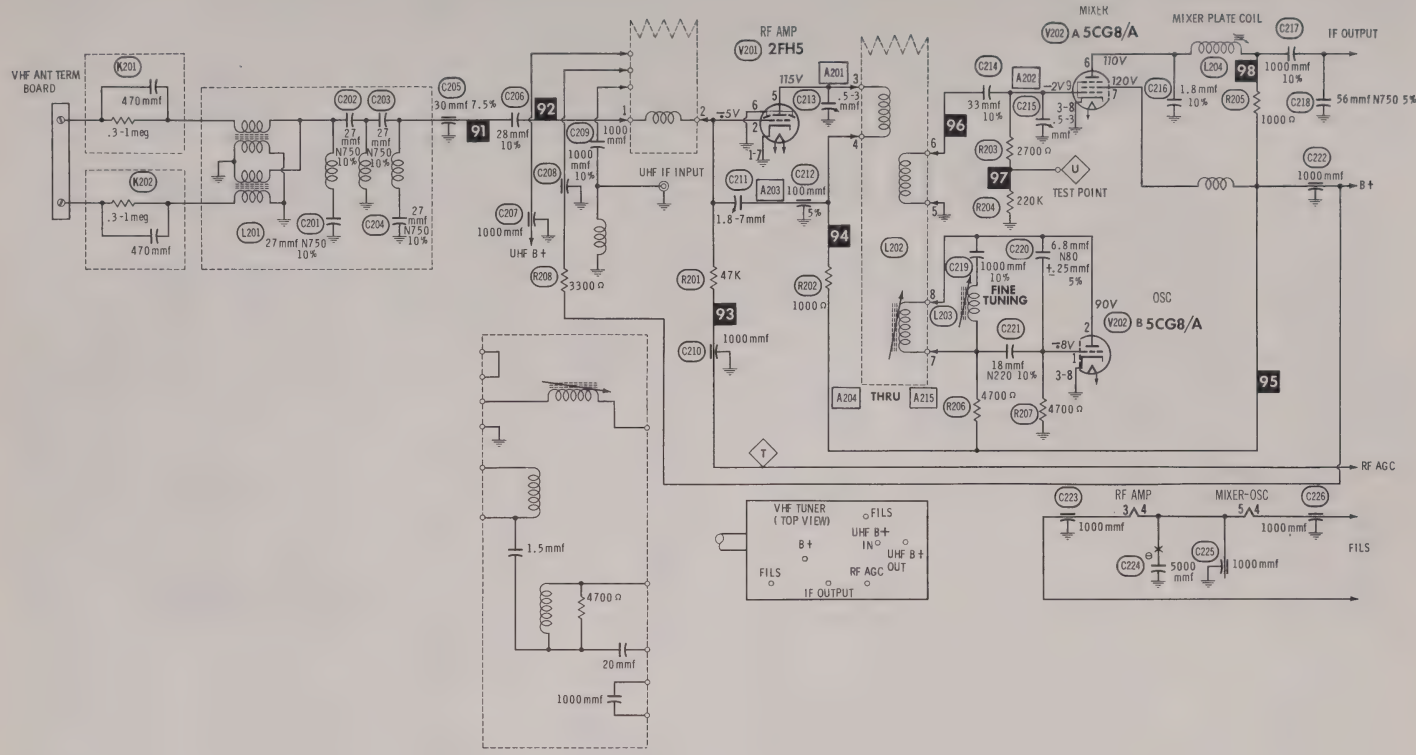
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER WITH UHF PROVISIONS 54-97394-6 - BOTTOM VIEW



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VHF TUNER WITH UHF PROVISIONS 54-97394-6

SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

VHF TUNER PARTS LIST AND DESCRIPTIONS

54-97394-6

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC •		RAYTHEON •	SYLVANIA •	
V201	RF Amp.	2FH5	V202	Mixer - Osc.	5CG8 (5CG8A) *

* Alternate

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30 7.5%	#169-0073						
C206	28 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1000		EF-001	MFT-1000		CCF-102	CT280A	
C209	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C210	1000		EF-001	MFT-1000		CCF-102	CT280A	
C211	1.8-7	#172-0063		829-7				
C212	100 5%		EF-0001	MFT-100				
C213	.5-3			829-3		CV-1	CT565	
C214	33 10%		NPO-DI 33	DTZ-33	C10Q33C	C10Q33C	CNO-433	10TCC-Q33
C215	.5-3			829-3		CV-1	CT565	
C216	1.8 10%		NPO-SI 2.0		C10V2C			10TCC-V18
C217	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C218	56 N750 5%			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C219	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C220	6.8 N80 +5%-.25mmf	#168-0104				*		
C221	18 N220 10%	#166-0018N				*		10TCR-Q18
C222	1000		EF-001	MFT-1000		CCF-102	CT280A	
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	
C224	5000	Note 1	BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C225	1000		EF-001	MFT-1000		CCF-102	CT280A	
C226	1000		EF-001	MFT-1000		CCF-102	CT280A	

Note 1. May not be used in some versions. # Silvertone Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	47K				R205	1000Ω			
R202	1000Ω				R206	4700Ω			
R203	2700Ω				R207	4700Ω			
R204	220K				R208	3300Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K201	VHF Antenna Isolation	470mmf, .3-1meg	190-0035	Centralab RC-471 Sprague AC1-1
K202	VHF Antenna Isolation	470mmf, .3-1meg	190-0035	Centralab RC-471 Sprague AC1-1

COILS (RF-IF)

ITEM No.	USE	SILVERTONE PART No.	NOTES
L201	Ant. Trans.	111-0058	
L202A	Ant., RF, Mixer & Osc.	110-2002	Channel 2
B	"	110-2003	Channel 3
C	"	110-2004	Channel 4
D	"	110-2005	Channel 5
E	"	110-2006	Channel 6
F	"	110-2007	Channel 7
G	"	110-2008	Channel 8

ITEM No.	USE	SILVERTONE PART No.	NOTES
L202H	Ant., RF, Mixer & Osc.	110-2009	Channel 9
I	"	110-2010	Channel 10
J	"	110-2011	Channel 11
K	"	110-2012	Channel 12
L	"	110-2013	Channel 13
M	40MC IF	110-2001	UHF
L203	Fine Tuning	115-0003	Core #339-0072
L204	Mixer Plate	118-0069	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
	Shaft and Drum	339-0077	Assembly
	Spring	496-0245	Turret Retaining

TUNER ALIGNMENT INSTRUCTIONS
54-97394-6

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A203 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A204 thru A215 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

RF AND MIXER ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point ⏀ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Turn Contrast fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. to point ⏀ Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. Check to see that other channels have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

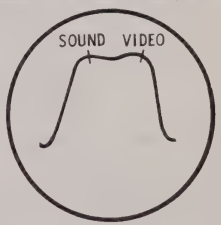


FIG. 201

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K across Video Det. load.	A204	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

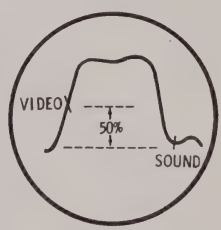


FIG. 202

UHF TUNER

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No	USE	GENERAL ELECTRIC / RAYTHEON / SYLVANIA TYPE
V1	1st Video IF Amp.	3BZ6
V2	2nd Video IF Amp.	3BZ6
V3	3rd Video IF Amp.	3BZ6
V4	Video Output - Horiz. AFC	8ET7
V5	AGC Keying - Sound IF Amp.	5BR8
V6	Ratio Det. - AF Amp.	6BN8
V7	Audio Output	5AQ5
V8	Sync Sep.	3C86
V9	Vert. Mult. - Vert. Output	10EG7
V10	Horiz. Mult.	6CG7
V11	Horiz. Output	12DQ6A
V12	Damper	12AX4GTA
V13	HV Rectifier	1G3GT/1B3GT

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V16	19AFP4		19AFP4 1		19AFP4 2	① Aluminized ② Silver Screen "B5"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	150	200	181-4025	PRI-100	XA0315	TC692	TD-150-200	TVAS-1447 * TVAS-4580	
C2A	150	350	181-4028	PR4-325					
B	100	350							
C	20	350							
D	100	25							
C3	2	50	181-1067	PRS1300	BBR3-50	TC303	TD-3-50	TVA-1301	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.22	100V			[illegible] 33		CY15E33	1DP-3-224	GEM-2022	2TM-P22
C5	39	NPO	5%			TCZ-39	C10Q39C		CNO-439	10TCC-Q39
C6	6.8	NPO	± .25mmf		NPO-DI 6.8	DTZ-6S8	C10Y6SC	CCTO-6S8	CNO-568	10TCC-Y6S
C7	4.7	NPO	± .25mmf		NPO-DI 4.7	DTZ-4R7	C10Y4RC	CCTO-4R7	CNO-547	10TCC-Y4T
C8	3.3	NPO	± .25mmf		NPO-DI 3.3		C10Y3C			10TCC-Y2T
C9	2.7	NPO	± .25mmf		NPO-DI 2.7		C10Y2C			10TCC-Y2T
C10	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C11	.22	100V			P288N-22		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C12	15	200V			P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C13	150		10%		DI-500	DD-511	5R5T51	CCD-510	GP351	10TS-T50
C14	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C15	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C16	330		10%		DM-331		L10T33	CCD-331	GP333	10TS-T33
C17	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C18	88	N330	5%	#43-85969-18						10TCH-Q68
C19	800		10%		DI-820	DD-801	5R5T8	CCD-801	GP382	10TS-T80
C20	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C21	1000				BPD-01	DD-103	BYA10DI	CCD-103	B-110	5HK-S10
C22	270	N1500	10%	#43-85969-1						
C23	5.6	NPO	5%				C10Y5C			10TCC-Y5S
C24	10	NPO	10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C25	10	NPO	10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C26	.022	200V	10%		P364S22-10%		P364S22	4DP-3-223	GEM-4612	2TM-S22
C27	.22	400V			P488N-22		CUB4P22	4DP-3-224	GEM-4022	4TM-P22
C28	10	NPO	10%		NPO-DI 10	TCZ-18	C10Q1RC	CCTO-180	CNO-418	10TCC-Q18
C29	18	N750	10%		N750-DI 20	TCN-18	C10Q18U		CN7-418	10TCU-Q18
C30	.22	400V			P488N-22		CUB4P22	4DP-3-223	GEM-4022	GEM-4022
C31	1000			Note 1	BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C32	[illegible]				BPD-001	DD-103	BYA10DI	CCD-102	B-210	5HK-D10
C33	47	5000V	N150	#IK-3094						
C34	.022	400V			P488N-022	DD-303	CUB4S22	4DP-3-223	GEM-4122	4TM-S22
C35	100		10%		1489-0001	TCZ-100	22S5T1	CM-15B-101K	MCB235	MS-31
C36	[illegible]				BPD-01	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C37	10000				BPD-01	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C38	4700				BPD-0047	DD-473	BYA10D473M	CCD-472	B-247	5HK-D47
C39	[illegible]				BPD-01	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C40	[illegible]				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C41	2200		10%		DE-222		PM6D22	CCD-222	GP222	10TS-D22
C42	.0082	600V	10%		P694CW-0082		CUP6E82	6DP-2-822	GEM-16282	6TM-D80
C43	.01	400V			P488N-01	DE-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C44	.1	200V			P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-291	2TM-P10
C45	.022	400V			P488N-022	DD-303	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C46	.0082	1000V	10%				DPMS6D22	16DP-2-222	GP222	MB-D22
C47	.005	600V	10%		V84C5R-10%	DD-102	P5R5T5	6DP-1-103	GP220	6TM-D50
C48	.33	400V			P488N-33		CUB4P33	4DP-5-334	GEM-4033	4TM-P33
C49	.047	400V			P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C50	.10	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C51	.0056	1000V	10%						GEM-16256	
C52	[illegible]				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C53	.0047	400V			P488N-0047	DE-472	CUB6D47	6DP-1-473	GEM-6247	6TM-D47
C54	.47		10%		1489-000047	TCZ-47	22S5Q47	CM-19B-470K	CNO-447	MS-447
C55	.330		10%		1489-00033	5R5T33	CM-19B-331K	MCB-241	MS-330	
C56	.047	400V			P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C57	.022	600V	10%		V84C5S22-10%		P6S22	6DP-2-223	GEM-1612	6TM-S22
C58	[illegible]			Note 1	BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C59	.82	3000V	10%	#IK-3081					3DY-482	
C60	.75	5000V	10%	#IK-3053						
C61	[illegible]				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C62	[illegible]				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C63	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C64	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C65	1000				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C66	[illegible]				BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C67	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C68	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C69	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C70	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C71	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C72	1000			SI 1000	D6-102	BYA10DI	CCD-102	B-210	5HK-D10
C73	1000			BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C74	22	400V		P488N-22		CUB4P22	4DP-5-234	GEM-4022	4TM-P22

Note 1. May not be used in some versions. # Silvertone Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	250K	½	153-0245					Volume
R2	25K	½	153-0193					Contrast
	800Ω Stop							
	17K Tap							
R3	1meg	½	153-0244					Brightness
R4	5meg	½	153-0200	T7-87	B47-5meg-S	HLC5	PTA56L	Focus
R5	190K	½	153-0179					AGC
R6A	50K	½	153-0236	T7-31	B47-50K-S	Bil-123	PTA54L	Width
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R7	5meg	½	153-0200	T7-87	B47-5meg-S	HLC5	PTA56L	Height
R8	2meg	½	153-0177	T7-75	B47-2meg-S	HLC1	PTA28L	Vert. Linearity
	1.5meg Stop			*	*	*	*	
R9A	1meg	½	153-0199	T7-69	B47-1meg-S	Bil-137	TA16L	Vert. Hold
	950K Stop			**	**	**	**	
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

* Use 100K Resistor in series with right hand terminal, viewed shaft end terminals down.
** Use 47K Resistor in series with right hand terminal, viewed shaft end terminals down.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No	WORKMAN TV PART No	REMARKS
R10	5.6meg			
R11	470K			
R12	4700Ω			
R13	220K			
R14	100K			
R15	220K			
R16	100Ω			
R17	360Ω			
R18	18K			
R19	47K			
R20	39Ω			
R21	18K			
R22	470Ω			
R23	2200Ω			
R24	180Ω			
R25	100Ω			
R26	6800Ω			
R27	3300Ω			
R28	7000Ω 7W	PW7-7000	10W-SQ-7000	#189-0088
R29	18K			
R30	18K			
R31	27Ω			
R32	18K			
R33	22K			
R34	22K			
R35	22K			
R36	1.2meg			
R37	180K			
R38	1000Ω			
R39	470K			Note 1
R40	470K			
R41	56K			
R42	150K			
R43	56K			
R44	470Ω			
R45	10K			
R46	56K 1W			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R47	220Ω			
R48	27K			
R49	330Ω			
R50	1meg			
R51	100K			
R52	33K			
R53	68K			
R54	10K 2W			
R55	10K 1W			
R56	6.8meg			
R57	2.2meg			
R58	1.5meg			
R59	330K			
R60	680K			
R61	500K			#189-0081
R62	12K 1W			
R63	33K			
R64	1000Ω			
R65	1meg			
R66	470Ω 2W			
R67	220Ω			
R68	10K 1W			
R69	1000Ω			
R70	470K			Note 1
R71	68K			
R72	220Ω			
R73	270K			
R74	15K 2W			
R75	18K 2W			
R76	4700Ω			
R77	470Ω			
R78	6.8meg			
R79	2700Ω 10W	PW10-2700	10W-SQ-2700	#189-0091
R80	4.7Ω 5W	PW5-4.7	5W-SQ-4.7	#87-0034
R81	4Ω 20W			#87-0087
R82	4700Ω			
R83	47K			

Note 1. May not be used in some versions. # Silvertone Part Number.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	Vert. Retrace	3300mmf, 6800mmf, 22K, 33K	190-0059	
K2	Audio Coupling	400mmf, 6800mmf, 10000mmf, 470K, 470K, 10meg	190-0058	
K3	Audio Output Secondary	470mmf, .3-1meg	190-0035	Centralab RC-47I Sprague ACI-1
K4	Sync Takeoff	1000mmf, 10000mmf, 330K, 1meg	190-0043	
K5	AFC Network	75mmf, 82mmf, 1500mmf, 4700mmf, 47000mmf, 47K, 180K, 270K, 330K, 2700Ω	190-0062	
K6	Horiz. Mult. Plate	680mmf, 1000mmf, 4700mmf, 2700Ω, 96K	190-0061	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	47.25MC Trap	119-0026					
L2	41.25MC Trap	120-0027					
L3A	1st Video IF	119-0027					
B	47.25MC Trap						
L4	2nd Video IF	119-0028					
L5	3rd Video IF	119-0028					
L6	RF Choke (10uh)	119-0032	BC-561	4602	RTC-8515	T855	
L7	4th Video IF	119-0026					
L8	RF Choke (10uh)	118-0030	BC-566	4612	RTC-8522	T861	
L9	RF Choke (10uh)	118-0030	BC-566	4613	RTC-8522	T861	
L10	Peaking (66uh)	131-3036	TV-193	6110	RTC-8573	T338	
L11	Peaking (160uh)	131-3034	TV-184	6120	RTC-8575	T343	
L12A	4.5MC Trap	120-0023					
B	Sound IF						
L13	Peaking (365uh)	131-3037	TV-201	6134	RTC-8578	T350	
L14	Ratio Detector	127-0002					
L15	RF Choke (12uh)	118-0010	BC-586	4612	RTC-8522	T860	
L16	Fil. Choke (1.2uh)	118-0032	BC-561	4602	RTC-8515	T855	
L17	Fil. Choke (1.2uh)	118-0032	BC-561	4602	RTC-8515	T855	
L18	Fil. Choke (1.2uh)	118-0032	BC-561	4602	RTC-8515	T855	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L19	Horiz. Stabilizer (Freq.)	132-0022							

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L20	.290A	35Ω	.9Ω	145-0020		C-2343	25C44	C-34X	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	241-0047						
T2	Yoke (Horiz. 33MH) 116° (Vert. 30MH)	100-0040	MDF-110		DY-42A	Y-46 ①	Y-66-1	
	Rear Cover and Centering Device	400-0041						
	Yoke Clamp	487-0075						
T3	Horiz. Output	241-0050					D-202	

① Requires new Rear Cover and Centering Device.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	12K	3-4Ω	143-0095	A-2032 ①	A-3879 ①	24S83	S-11X	①Drill new mounting hole(s).

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	4" x 6"	PM	3-4Ω	539-4608	4SA1	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: SILVERTONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.290A	517-0021	1N1763	40H	SR500	
M2	.290A	517-0021	1N1763	40H	SR500	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3	1N295			1N295	1N295	Video Detector (Pigtail)

SILVERTONE MODELS 122, 123, 124, 125, 126, 127 (Ch. 101.60100, 101.60200)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Tuner (VHF with UHF Provisions)	54-97394-6	Used in Chassis 101-60200 STANDARD COIL REPLACEMENT #GGS-4221-A * * Use original Fine Tuning Arm & Fine Tuning Iron Core Assy.
	Tuner (VHF)	54-97393-3	Used in Chassis 101-60100
	Tuner (UHF)	54-95755-4	Used in Chassis 101-60200
M5	Switch	571-0018	AGC (Normal-Strong), SPDT Slide Type
M6	Switch	571-0044	Off-On
M7	Circuit Breaker	191-0026	
M8	Antenna	580-0012	JFD REPLACEMENT Type #TA404.

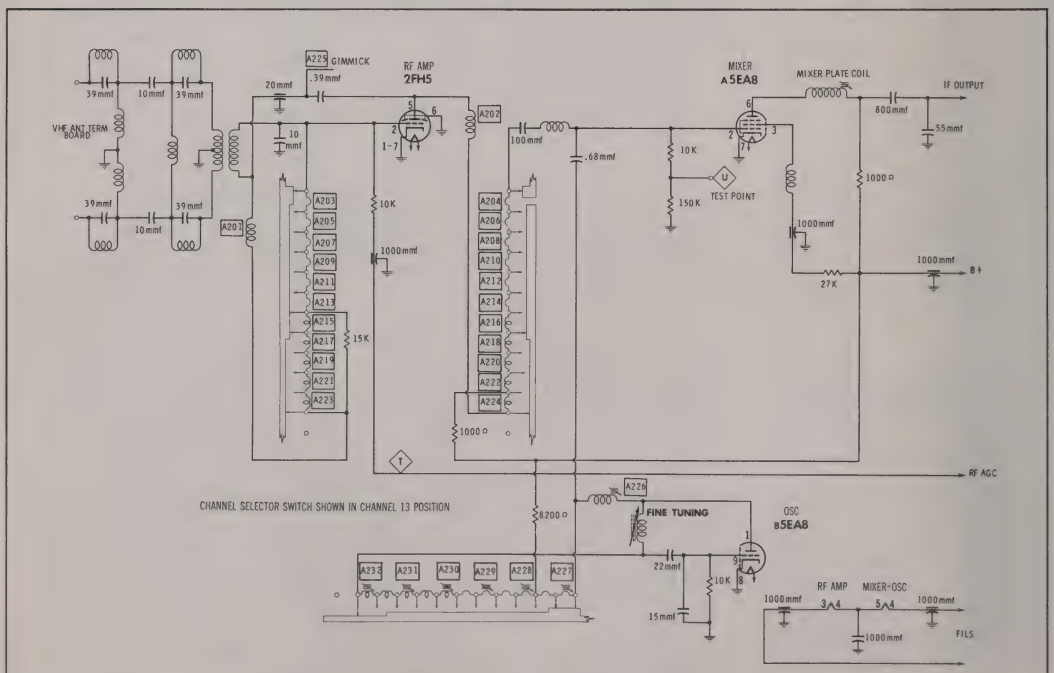
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Mask	716-0076	
Knob	743-0117	VHF Channel Selector, Models 122, 124, 126
Knob	743-0118	VHF Channel Selector, Models 123, 125, 127
Knob	740-0417	UHF Channel Selector, Models 123, 125, 127
Knob	722-0089	UHF Channel Indicator, Models 123, 125, 127
Knob	740-0416	Fine Tuning, Brightness, Contrast, Volume
Knob	740-0254	Vertical Hold
Cabinet	10-97861-1	Models 122 and 123
Cabinet	10-97861-2	Models 124 and 125
Cabinet	10-97861-3	Models 126 and 127

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 54-97393-3

TUNER ALIGNMENT INSTRUCTIONS

54-97393-3

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope. Use 10MC Sweep unless otherwise noted.
Connect the negative lead of a 2.5 volt bias supply to point (1). Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF Antenna Terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (1). Low side to chassis.	A201, A202	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	207MC	205.25MC 209.75MC	12	"	A203, A204	"
3.	"	201MC	199.25MC 203.75MC	11	"	A205, A206	"
4.	"	195MC	193.25MC 197.75MC	10	"	A207, A208	"
5.	"	189MC	187.25MC 191.75MC	9	"	A209 A210	"
6.	"	183MC	181.25MC 185.75MC	8	"	A211, A212	"
7.	"	177MC	175.25MC 179.75MC	7	"	A213, A214	"
8.	"	85MC	83.25MC 87.75MC	6	"	A215, A216	"
9.	"	79MC	77.25MC 81.75MC	5	"	A217, A218	"
10.	"	69MC	67.25MC 71.75MC	4	"	A219, A220	"
11.	"	63MC	61.25MC 65.75MC	3	"	A221, A222	"
12.	"	57MC	55.25MC 59.75MC	2	"	A223, A224	"
13.	"	201MC	199.25MC 203.75MC	"	"	A225	Increase bias over -10 volts. Adjust A225 for MINIMUM response.

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the Fine Tuning to the center of its range.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope. Use 10MC Sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Across VHF Antenna Terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K across Video Detector Load.	A226	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
15.	"	207MC	205.25MC 209.75MC	12	"	A227	"
16.	"	195MC	193.25MC 197.75MC	10	"	A228	"
17.	"	183MC	181.25MC 185.75MC	8	"	A229	"
18.	"	85MC	83.25MC 87.75MC	6	"	A230	"
19.	"	69MC	67.25MC 71.75MC	4	"	A231	"
20.	"	57MC	55.25MC 59.75MC	2	"	A232	"

FIG. 201

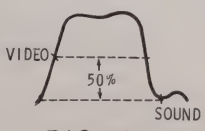


FIG. 202

UHF TUNER PARTS LIST AND DESCRIPTIONS

54-95755-4

TUBES

• GENERAL ELECTRIC •			RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V301	UHF Osc.	2AF4B			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	30 N750 5%	#43-93017-1		TCN-30	C10Q3U			
C302	4.5 N330	#43-93017-3				*		
C303	150	#43-93017-2						
C304	1000		EF-001	MFT-1000		CCF-102	CT280A	
C305	1000		EF-001	MFT-1000		CCF-102	CT280A	
C306	1000		EF-001	MFT-1000		CCF-102	CT280A	

Silvertone Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R301	10K								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K301	UHF Antenna Isolation	470mmf, .3-1meg	190-0035	Centralab RC-471 Sprague AC1-1
K302	UHF Antenna Isolation	470mmf, .3-1meg	190-0035	Centralab RC-471 Sprague AC1-1

COILS (RF-IF)

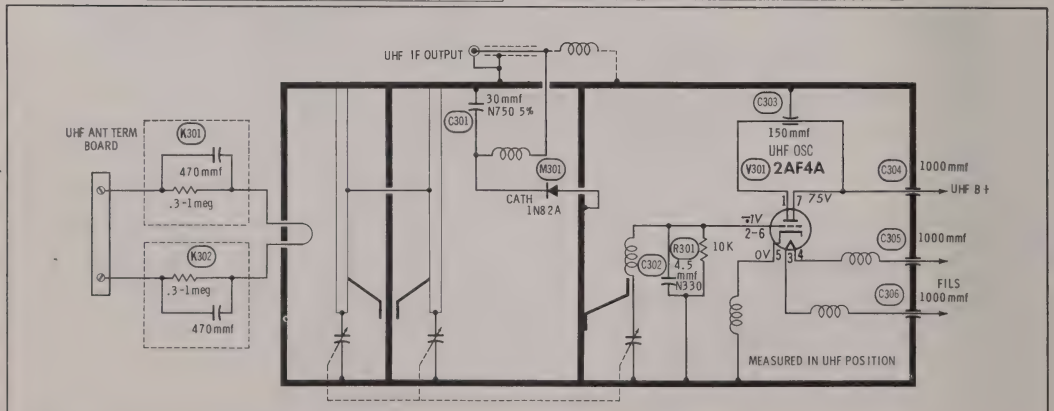
ITEM No.	USE	SILVERTONE PART No.	NOTES	ITEM No.	USE	SILVERTONE PART No.	NOTES
L301	RF	54-97672-3		L304	Cathode Choke	54-97672-1	
L302	Mixer	54-97672-3		L305	IF Choke	54-97672-4	
L303	RF Choke			L306	Fil. Choke	54-97672-2	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M301	1N82A	1N82A		1N82A	1N82A	UHF Mixer

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES	ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
	Board Assembly	480-0031	Antenna		Hub & Gear Assy.	484-0034	
	Pinion Gear	484-0038			Shaft, Gear Drive	493-0187	



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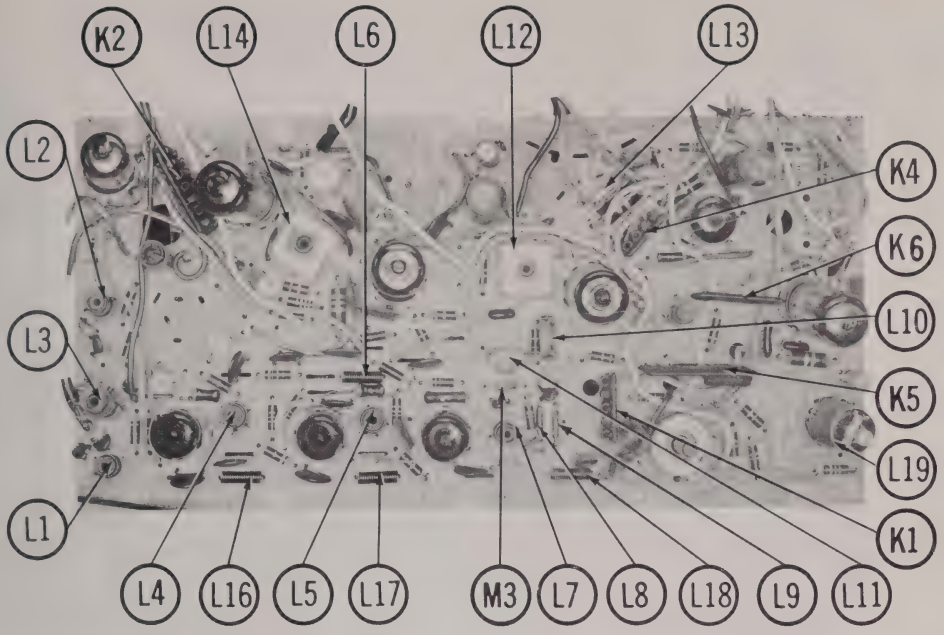
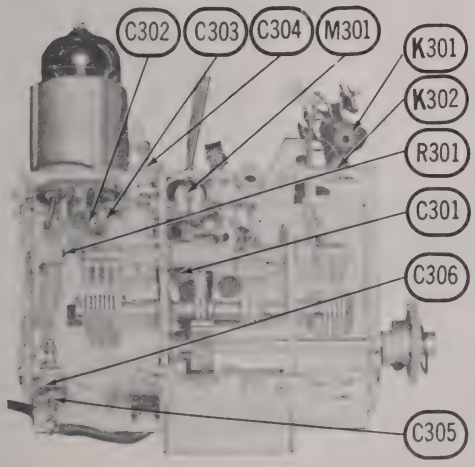
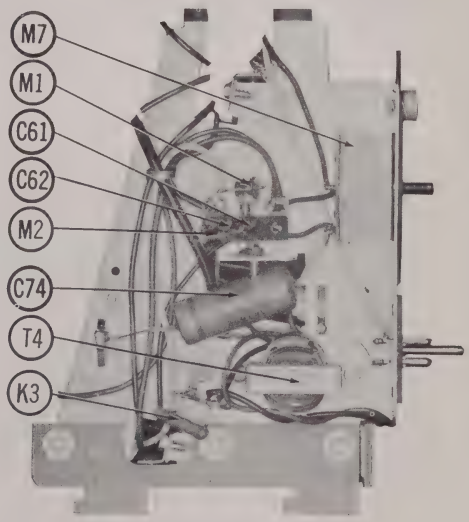
UHF TUNER 54-95755-4



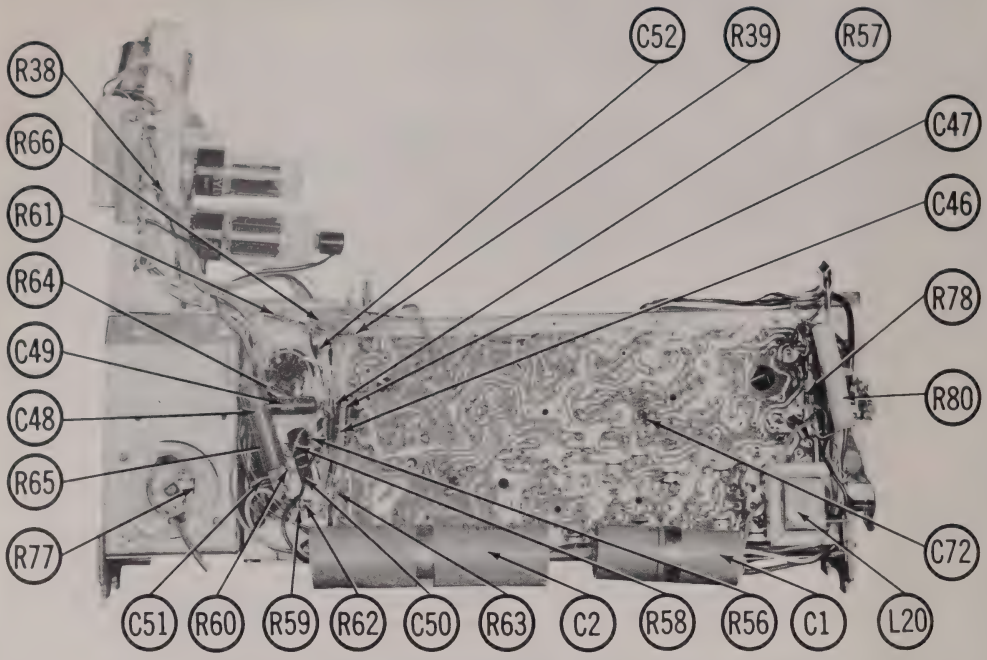
PRINTED BOARD - INDUCTOR & MISC. IDENT.



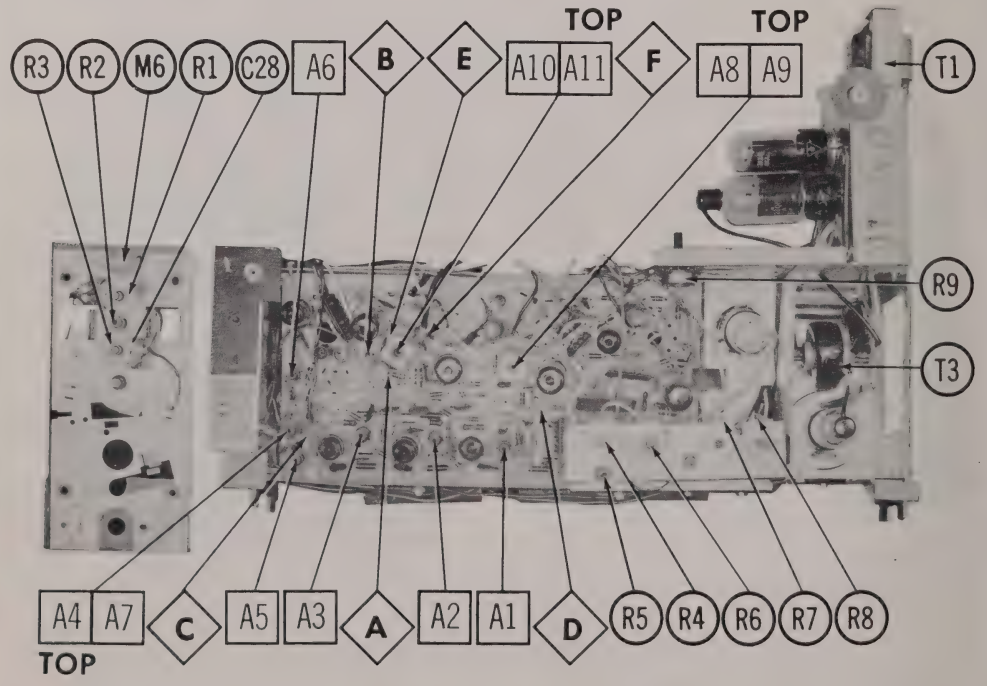
UHF TUNER 54-95755-4



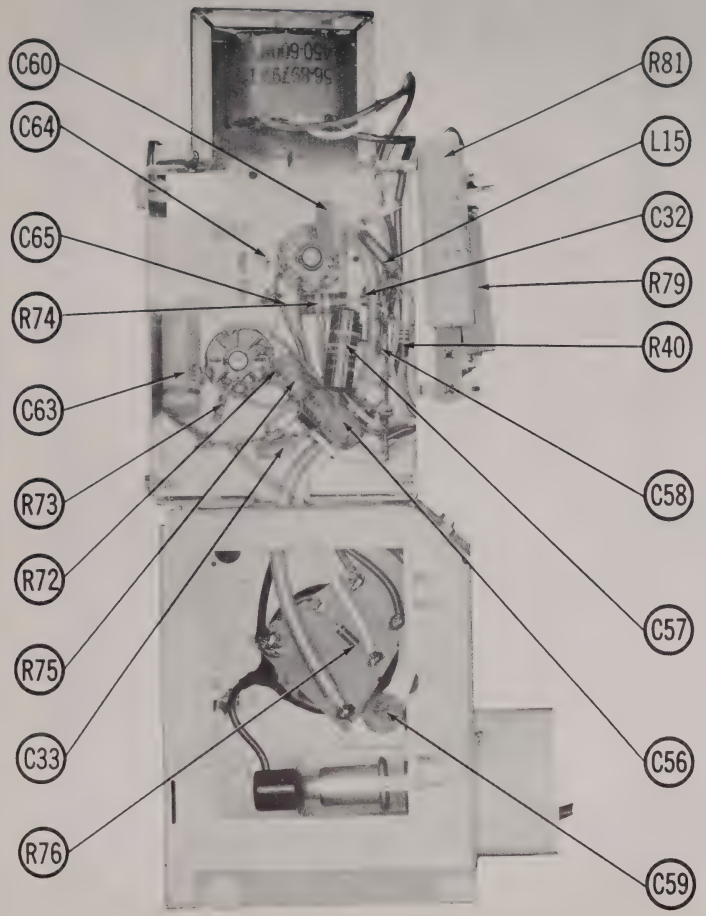
LV SUPPLY SECTION



CHASSIS - FRONT VIEW



CHASSIS - REAR VIEW

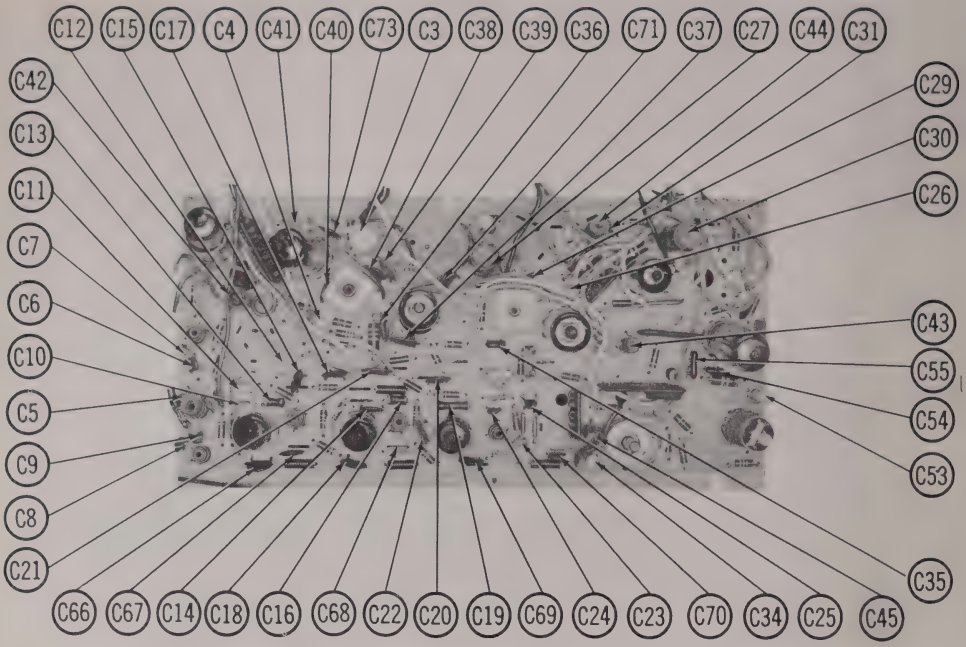


HORIZONTAL SWEEP SECTION

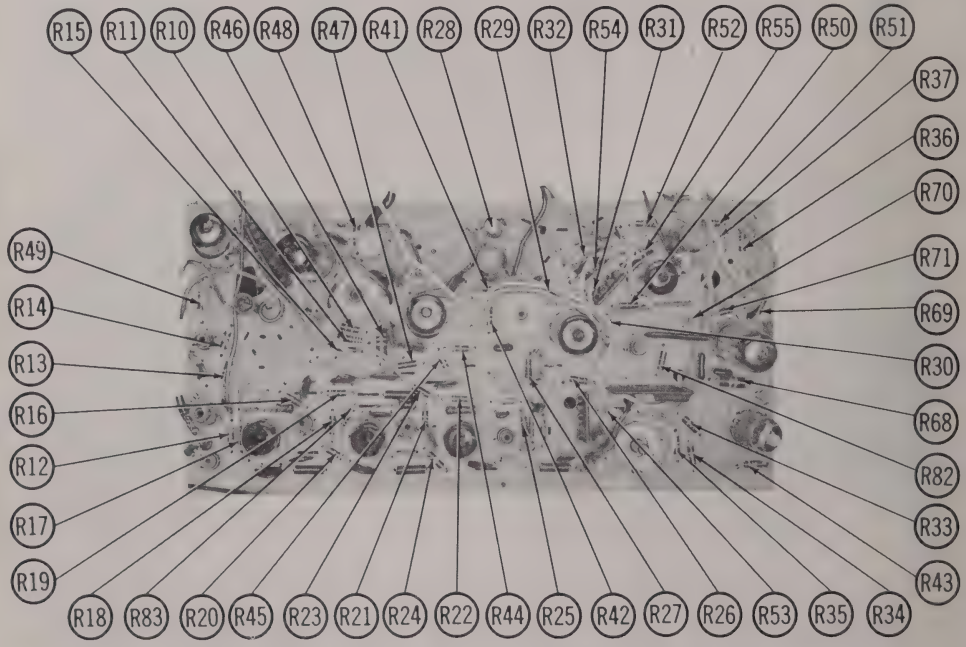
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	325K	240Ω	14Ω	13Ω	▪140Ω	▪140Ω	0Ω		
V2	3BZ6	25K	INF	13Ω	12Ω	†35Ω	†35Ω	39Ω		
V3	3BZ6	.1Ω	180Ω	12Ω	11Ω	†5400Ω	†5400Ω	0Ω		
V4	8ET7	330K	600K	2700Ω	4Ω	6Ω	27Ω	3300Ω	†2700Ω	†7000Ω
V5	5BR8	†45K	320K	• 60K	4Ω	2Ω	†56K	†56K	220Ω	10K
V6	6BN8	INF	27K	INF	0Ω	2Ω	0Ω	†470K	10meg	0Ω
V7	5AQ5	NC	330Ω	14Ω	16Ω	†665Ω	†2700Ω	470K		
V8	3CS6	†1meg	0Ω	8Ω	9Ω	20K	†7200Ω	1.3meg		
V9	10EG7	• 1.6meg	†180Ω	470Ω	• 3meg	• †2meg	0Ω	20Ω	25Ω	
V10	6CG7	†10K	800K	1000Ω	8Ω	6Ω	†68K	96K	1000Ω	0Ω
V11	12DQ6A	NC	35Ω	NC	†12K	270K	TP	30Ω	0Ω	TOP CAP †13Ω
V12	12AX4GTA	NC	NC	1.2meg	NC	†35Ω	TP	25Ω	30Ω	
V13	1G3GT/ 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †280Ω
V14	19AFP4	11Ω	40K	†4700	• †2.1meg	NC	NC	• 400K	9Ω	
V201	2FH5	0Ω	6.3meg	17Ω	18Ω	†3700Ω	0Ω	0Ω		
V202	5CG8	4700Ω	†7400Ω	0Ω	20Ω	18Ω	†3700Ω	†2700Ω	0Ω	220K
V301	2AF4B	†•6000Ω	10K	17Ω	16Ω	0Ω	10K	†•6000Ω		
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

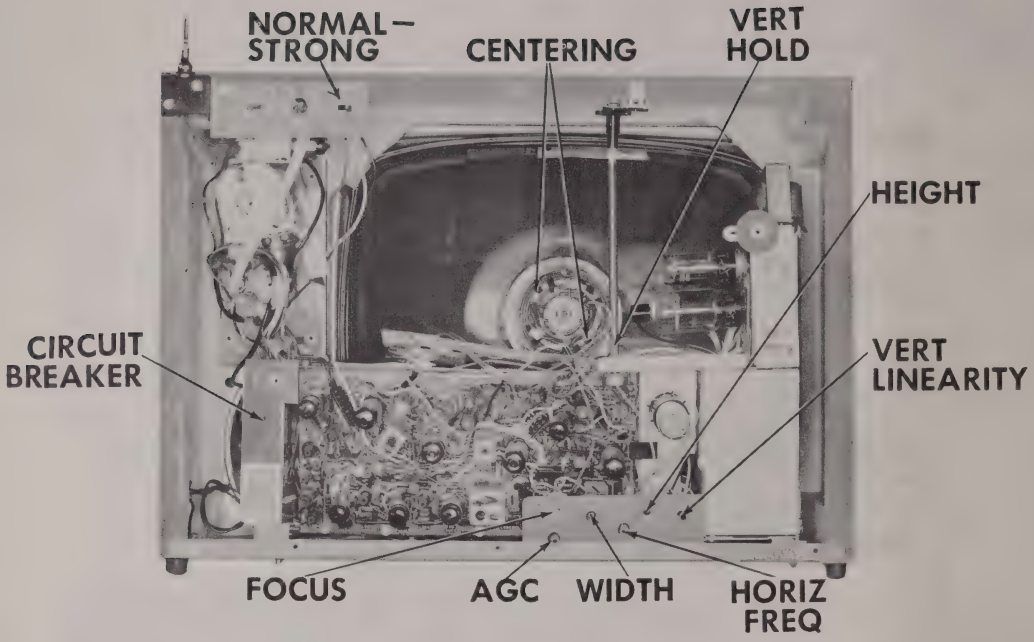
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
• MEASURED IN "UHF" POSITION.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
† MEASURED FROM PIN 3 OF V12.
▪ MEASURED FROM PIN 2 OF V2.
TP TIE POINT



PRINTED BOARD - CAPACITOR IDENT.



PRINTED BOARD - RESISTOR IDENT.



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast Controls for a normal picture.

Turn the Horizontal Hold (Freq. Slug) clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

Adjust Width Control for a picture SLIGHTLY wider than necessary to fill picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 127

1. Remove 7 push-on type knobs at front of cabinet.
2. Remove 6 screws holding rear cover. Remove rear cover.
3. Remove 1 screw supporting vertical hold control shaft and knob.
4. Remove antenna terminal board from cabinet.
5. Remove picture tube socket, yoke, hi voltage lead, and speaker lead.
6. Remove 4 nuts holding tuner and control panel to cabinet.
7. Loosen 2 screws at rear (bottom) of cabinet holding chassis.
8. Lift chassis up and back to remove.

PICTURE TUBE REMOVAL

1. Remove 3 screws holding trim at top of cabinet. Tilt out and remove mask.
2. Remove rear cover.
3. Remove yoke, picture tube socket, and high voltage lead.
4. Remove 4 screws holding picture tube mounting to cabinet (at front).
5. Remove picture tube out front.

PHOTOFACT® Folder

AIRLINE MODELS GAA-2614A, -2615A, -2830A, -2831A

AIRLINE MODELS GAA-2614A, -2615A, -2830A, -2831A

MODEL GAA-2830A

AIRLINE MODELS GAA-2614A, -2615A, -2830A, -2831A

TRADE NAME	Airline Models GAA-2614A, GAA-2615A, GAA-2830A, GAA-2831A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois
TYPE SET	AC Operated 3 Tube AM Tuner And 4 Tube Stereo Amplifier with 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 73 Watts, .7 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 — 1620KC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggestion Alignment Tools: A1 thru A4, A8.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A6, A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1620KC	"	"	A5	"
3.	"	1400KC	1400KC	"	A6, A7	"
4.	"	600KC	600KC	"	A8	Adjust for maximum output. Repeat Steps 2, 3, and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KP481

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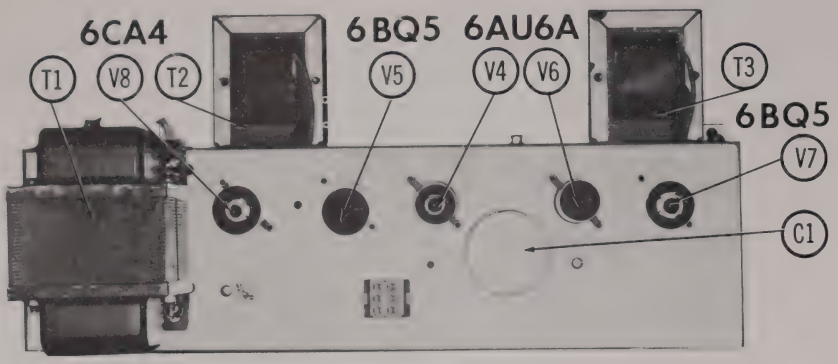
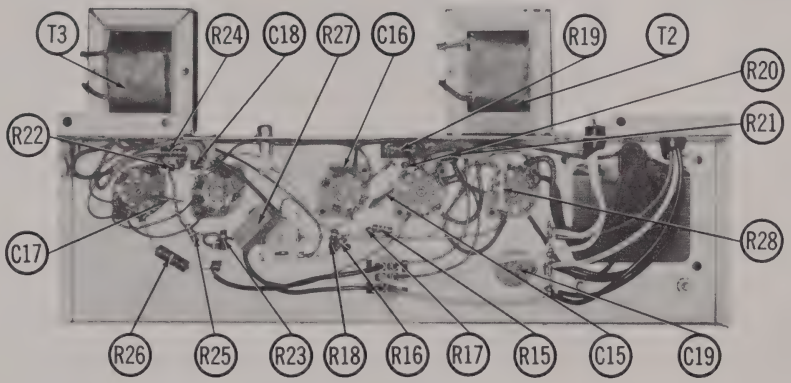
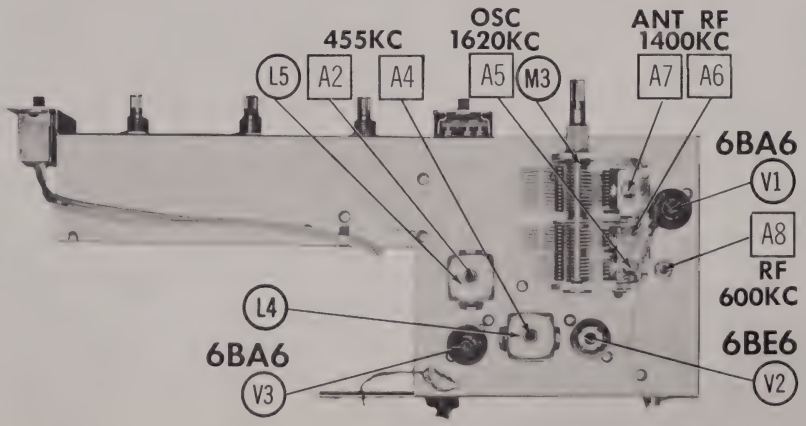


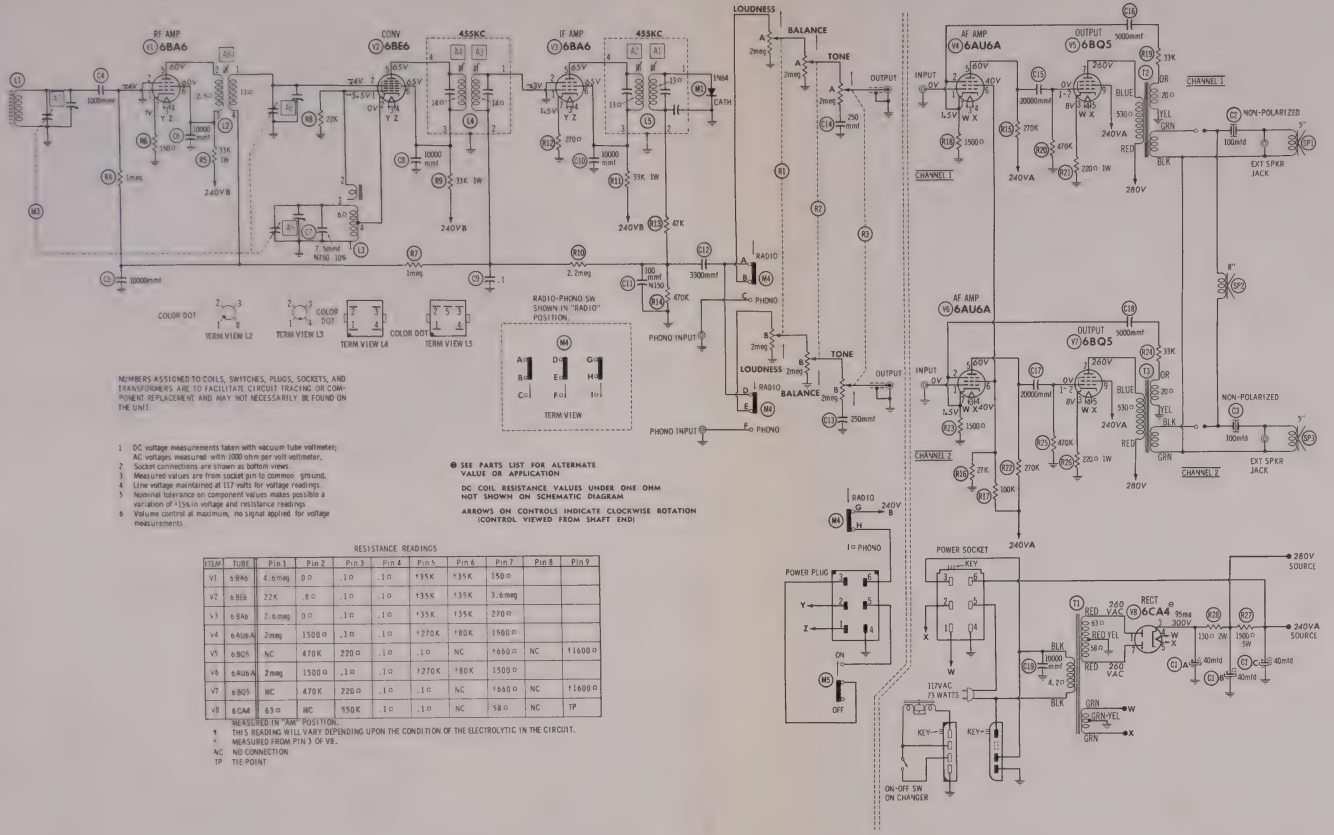
AMP CHASSIS-TOP VIEW



AMP CHASSIS-BOTTOM VIEW



TUNER CHASSIS-TOP VIEW



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	4.6meg	0Ω	.1Ω	.1Ω	†35K	†35K	150Ω		
V2	6BE6	22K	.8Ω	.1Ω	.1Ω	†35K	†35K	3.6meg		
V3	6BA6	2.6meg	0Ω	.1Ω	.1Ω	†35K	†35K	270Ω		
V4	6AU6A	2meg	1500Ω	.1Ω	.1Ω	†270K	†80K	1500Ω		
V5	6BQ5	NC	470K	220Ω	.1Ω	.1Ω	NC	†660Ω	NC	†1600Ω
V6	6AU6A	2meg	1500Ω	.1Ω	.1Ω	†270K	†80K	1500Ω		
V7	6BQ5	NC	470K	220Ω	.1Ω	.1Ω	NC	†660Ω	NC	†1600Ω
V8	6CA4	63Ω	NC	150K	.1Ω	.1Ω	NC	58Ω	NC	TP

MEASURED IN "AM" POSITION.
† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED FROM PIN 3 OF V8.
NC NO CONNECTION
TP TIE POINT

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AIRLINE MODELS GAA-2614A, -2615A, -2830A, -2831A

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V1	RF Amplifier	6BA6
V2	Converter	6BE6
V3	IF Amplifier	6BA6
V4	Channel 1 AF Amp.	6AU6A
V5	Channel 1 Output	6BQ5
V6	Channel 2 AF Amp.	6AU6A
V7	Channel 2 Output	6BQ5
V8	Rectifier	6CA4 (EZ81) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	350	1020A	AFH3-44	C0350	FP377.1	TMT-3748	TVL-3787	
B	■40	350							
C	▲40	350							
C2	100	15NP	923	PRS7340	BR10015	TCN425		*TVANS-1207.1	
C3	100	15NP	923	PRS7340	BR10015	TCN425		*TVANS-1207.1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C5	10000	-	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	10000		BPD-01	DD-103	BYA10S1 C10V8U	CCD-103	B-110	5HK-S10
C7	7.5 N750 10%	#913						
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103 *	B-110	5HK-S10 10TCP-T10
C11	100 N150							
C12	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C13	250		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
C14	250		DI-250	DD-251	L10T25	CCD-251	GP325	10TS-T25
C15	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C16	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C18	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

\# Airline Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	1/2	444	B-76	AD47-2meg-Z		FA26A	Loudness, Channel 2
B	2meg	1/2		SR-76	Not Req.		RU26A	Loudness, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	
R2A	2meg	1/2	445				FA26A	Balance, Channel 2
B	2meg	1/2					RU26R	Balance, Channel 1
C	Shaft						CS3500	
R3A	2meg	1/2	444	B-76	AD47-2meg-Z		FA26A	Tone, Channel 2
B	2meg	1/2		SR-76	Not Req.		RU26A	Tone, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	1meg			
R5	33K 1W			
R6	150Ω			
R7	1meg			
R8	22K			
R9	33K 1W			
R10	2.2meg			
R11	33K 1W			
R12	270Ω			
R13	47K			
R14	470K			
R15	270K			
R16	27K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R17	100K			
R18	1500Ω			
R19	33K			
R20	470K			
R21	220Ω 1W			
R22	270K			
R23	1500Ω			
R24	33K			
R25	470K			
R26	220Ω 1W			
R27	1500Ω 5W	PW-5-1500	5W-SQ-1500	
R28	130Ω 2W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA AIRLINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Loopstick	1512G	BC-418	705-A		T532	
L2	RF	1412	BC-388	70-RF	RTC-8732	T501	
L3	Osc.	1401B	BC-393	70-OSC	RTC-8647	T503	
L4	Input IF	1405	BC-352	12-C1	RTC-8632	T607	
L5	Output IF	1406A	BC-355	12-C6	RTC-8634	T609	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .7A	520VCT Ⓐ .095A	6.3VCT Ⓐ 3.9A	1110A				R-112A ①	①Tape 5V Winding. Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5800Ω	3-4Ω	1217A					
		SEC. 2						
		40Ω						
	PRI.	SEC. 1						
T3	5800Ω	3-4Ω	1217B					
		SEC. 2						
		40Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	2661 *	5A07	* Used in Models GAA-2830A, - 2831A
SP2	8"	PM	3-4Ω	2633B *	8A31	‡ Used in Models GAA-2614A, - 2615A
SP3	5"	PM	3-4Ω	2661 *	5A07	
	12"	PM	6-8Ω	2653 ‡	12A6AZ8	
	6"	PM	3-4Ω	2654 ‡	6A15	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	AIRLINE PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	60-79	CRA 57X* (LP)	86-TS-TB	N8-7 *	96T	Not Req.	12TH-S	Not Req.	
		CRA 57 * (STD)		N8-3 *					

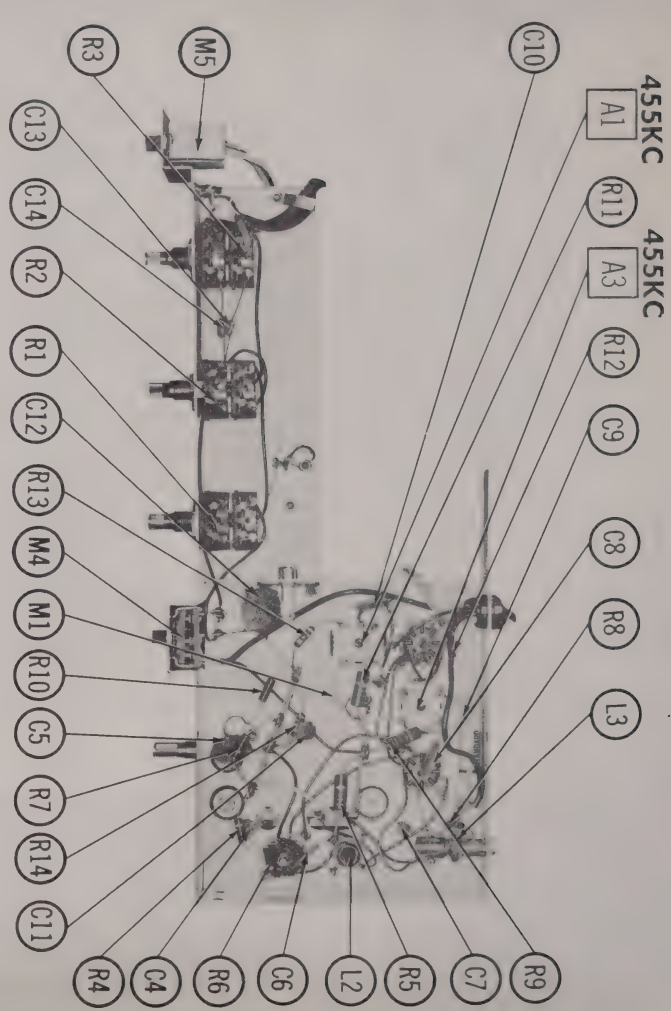
MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M2	Tuning Cap.	1022	3 Gang (Ant. 35—410mmf, RF. 13—225mmf, Osc. 14—125mmf)
M3	Switch	446	Radio-Phono (Slide Type TPDT)
M4	Switch	447	Off- On (Slide Type SPST)

WIRING DATA

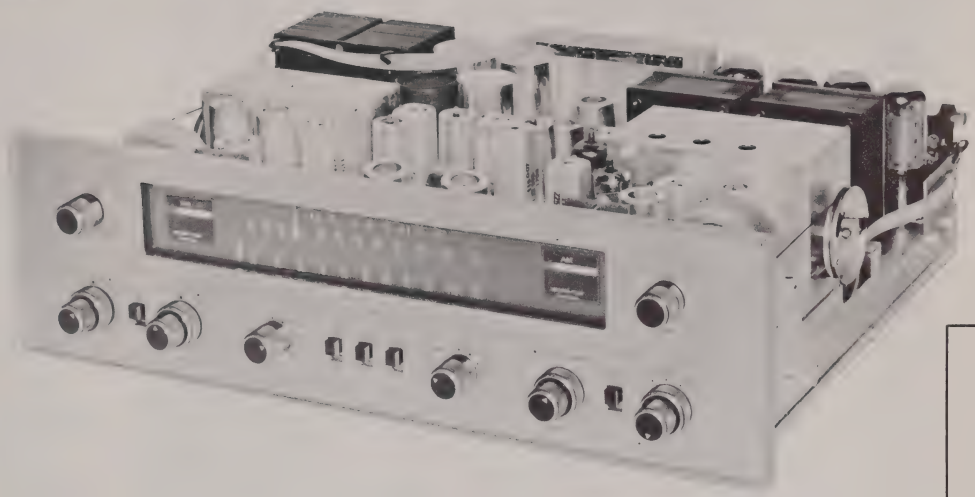
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUNER CHASSIS—BOTTOM VIEW



PHOTOFACT® Folder

FISHER
MODEL TA800

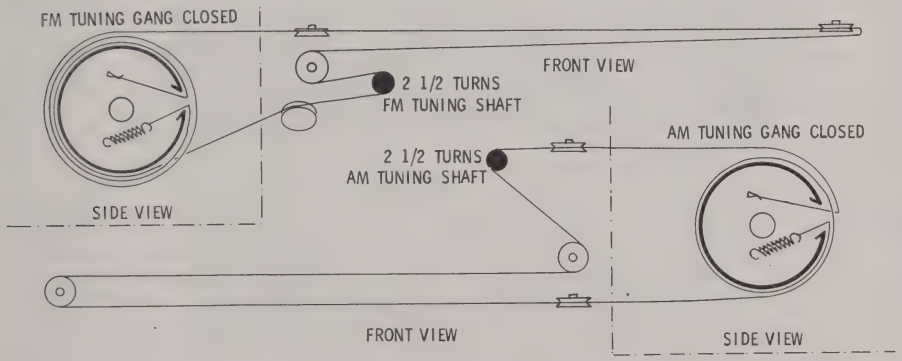


FISHER
MODEL TA800

FISHER
MODEL TA800

TRADE NAME	Fisher Model TA800 (Serial #10001-19999 Inclusive)		
MANUFACTURER	Fisher Radio Corp., 21-21 Forty-Fourth Drive, Long Island City 1, New York		
TYPE SET	AC Operated 20 Tube FM-AM Receiver with Stereo Amplifier		
POWER SUPPLY	105 – 120 Volts AC, 50-60 Cycles	RATING	170 Watts, 1.65 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540 – 1600KC	FREQ. MOD.	88 – 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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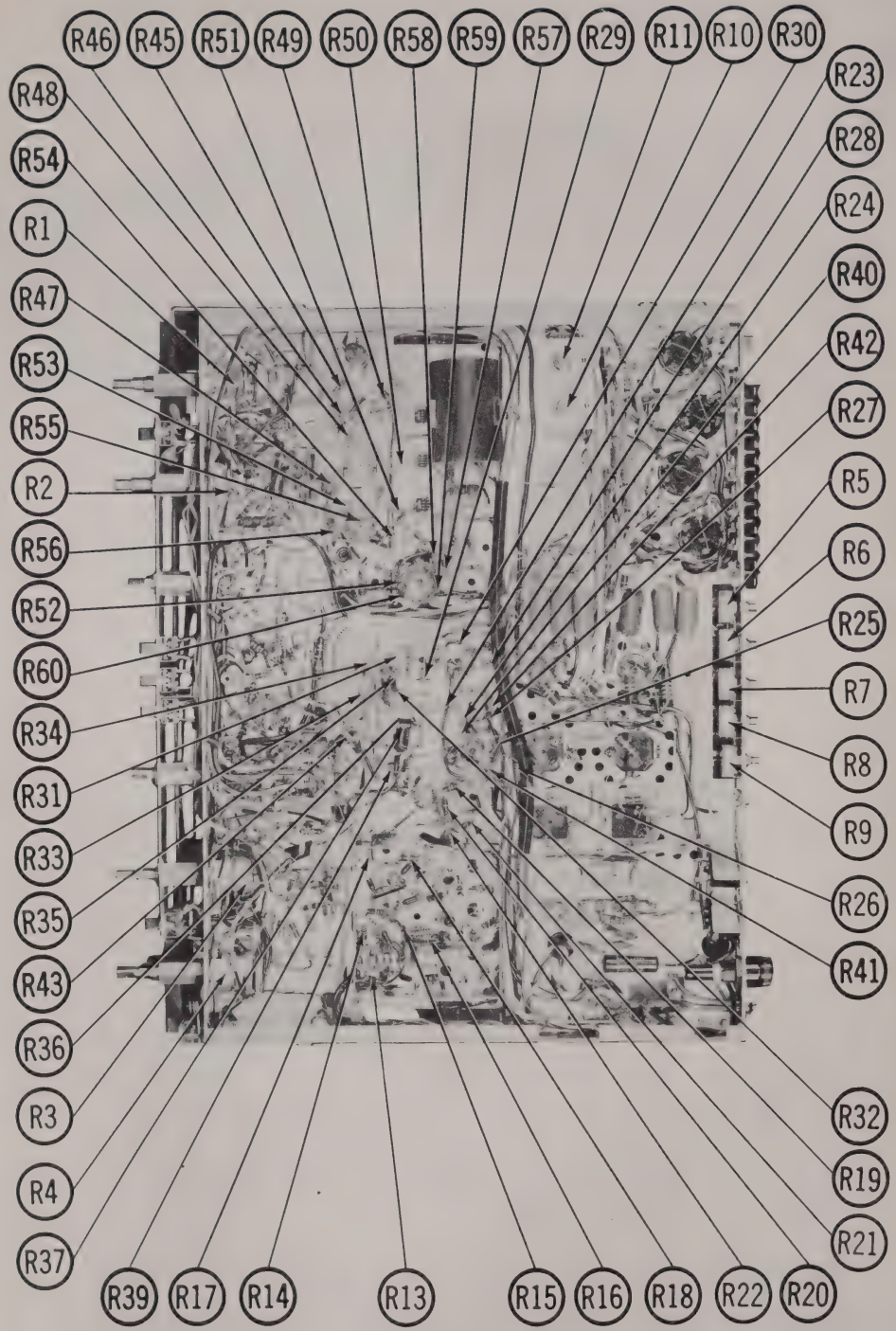
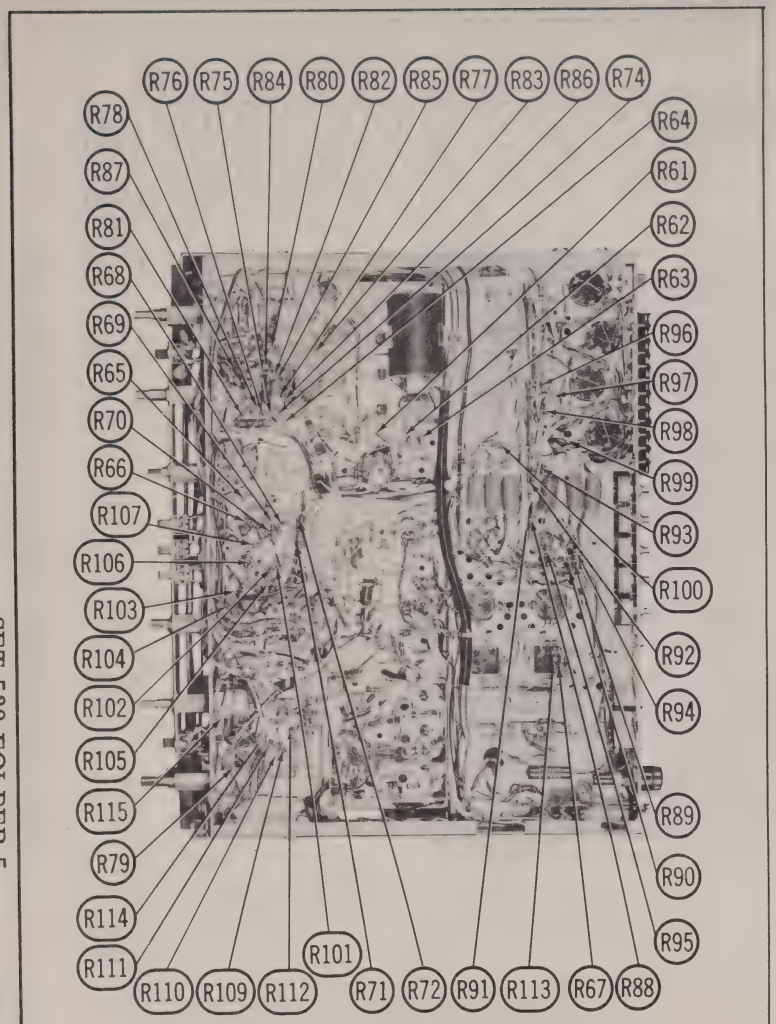
SET 530 FOLDER 5



CHASSIS BOTTOM VIEW-RESISTOR IDENT.



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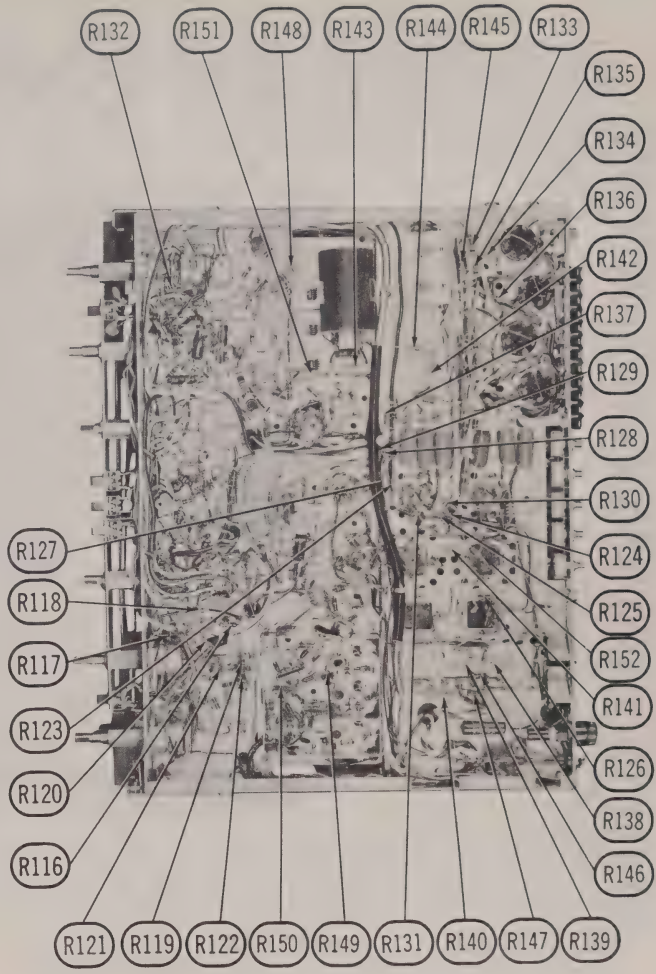

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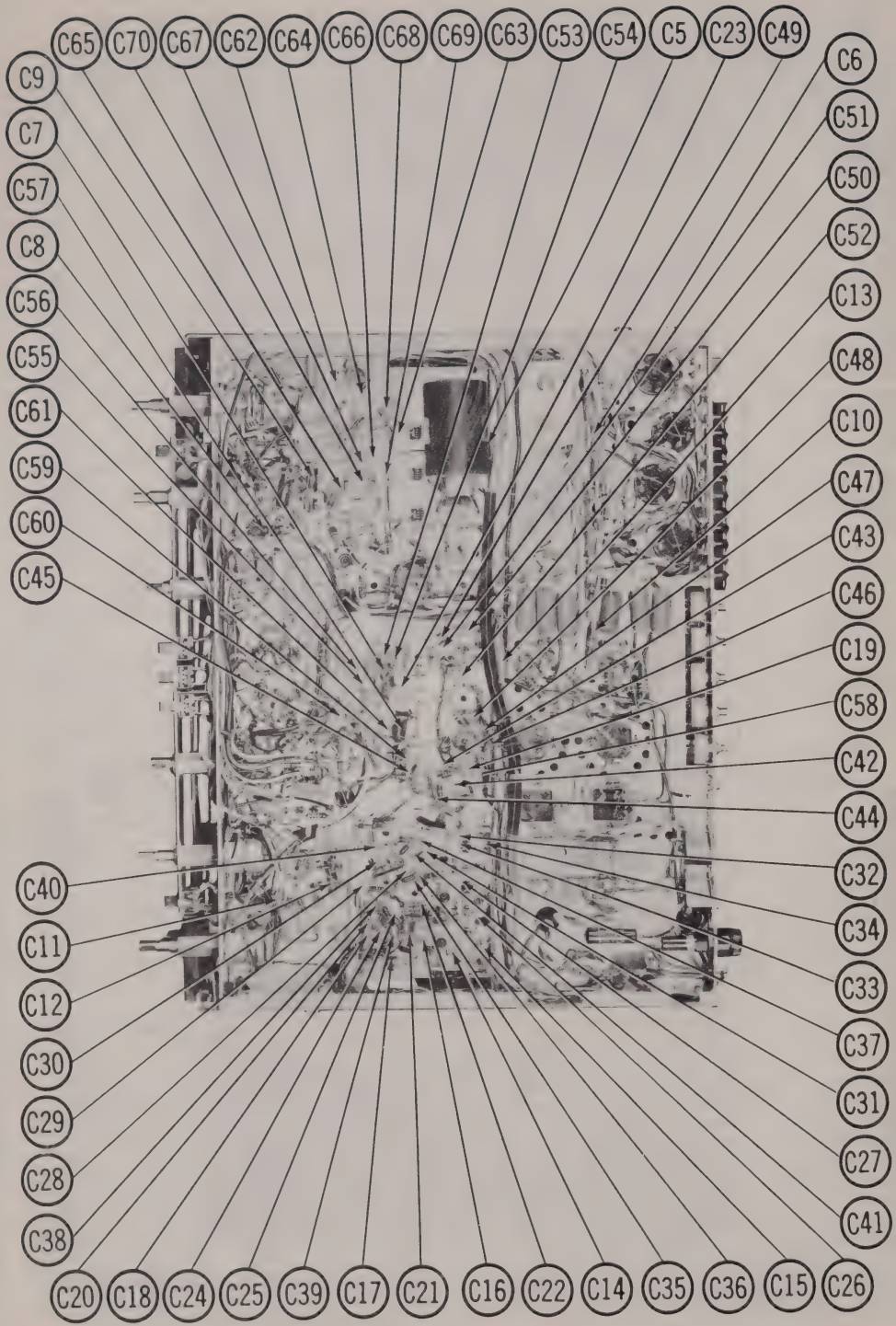
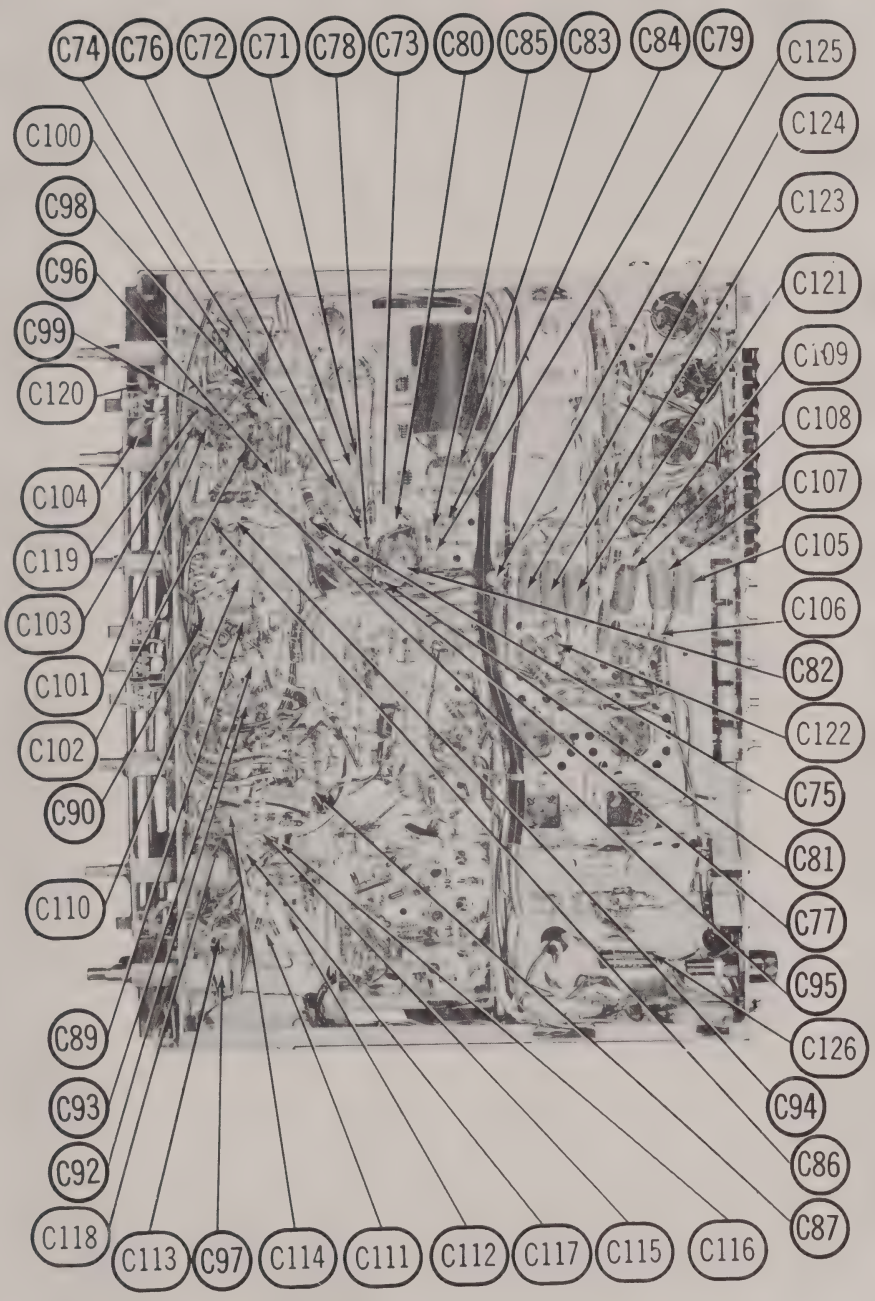
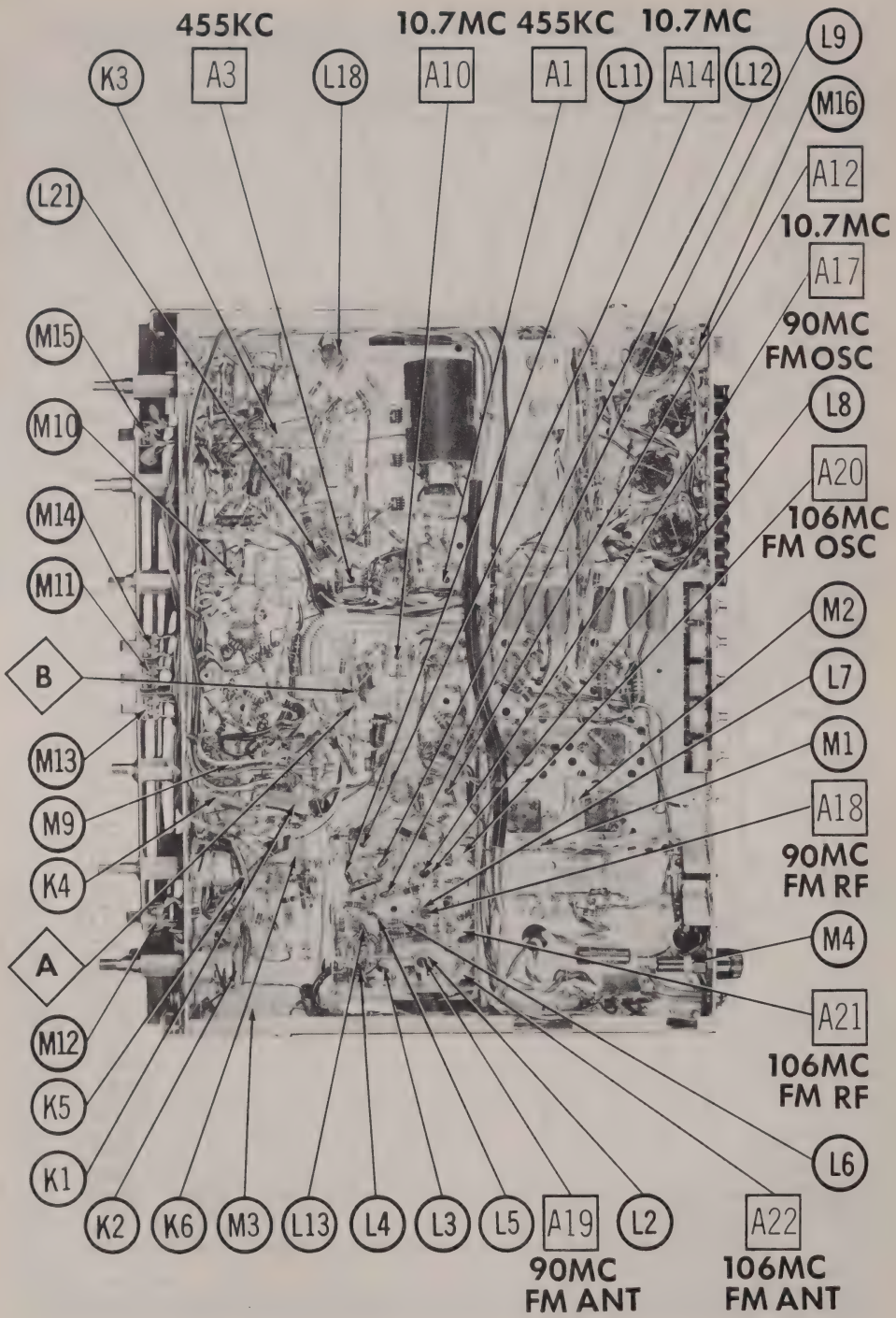


CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-ALIGNMENT, INDUCTOR & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1 thru A4, A6, A10, A12 thru A16	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A11, A17, A18, A19	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A7, A8, A9	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A20, A21, A22	GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298 WALSCO #2516, 2518, 2519

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 2 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	AM (Sharp) Tuning gang fully open.	AC probe across channel "B" RCDR Output jack	A1, A2, A3, A4	Adjust for maximum deflection.
2.	High side thru .01mfd to AM antenna terminal #3. Low side to chassis. Disconnect link between AM Antenna terminals #1 and 2.	600KC	600KC	"	A5, A6	"
3.	"	1400KC	1400KC	"	A7, A8, A9	Adjust for maximum output. Repeat Steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side to ungrounded tube shield floating over FM Mixer/Osc. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum deflection.
5.	"	"	"	DC probe to point (B). Common to chassis.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side to ungrounded tube shield floating over FM Mixer/Osc. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A10, A11, A12, A13, A14, A15	Disconnect stabilizing Capacitor C7. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C7.
5.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A16	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Across FM antenna terminals #2 and 3 with 120Ω in each lead.	90MC (Unmod.)	(FM) 90MC	DC probe to point (A). Common to chassis.	A17, A18, A19	Adjust for maximum deflection.
7.	"	106MC	106MC	"	A20, A21, A22	Adjust for maximum deflection. Repeat Steps 6 and 7.

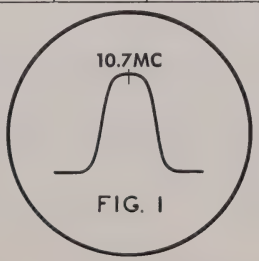


FIG. 1

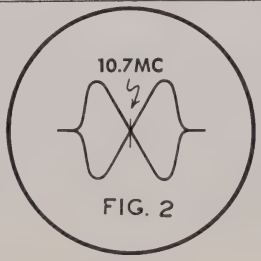
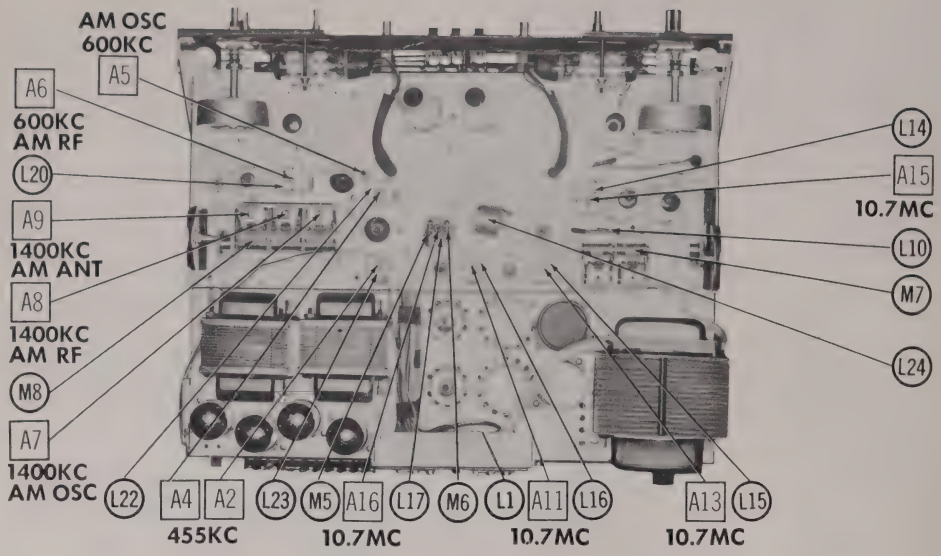
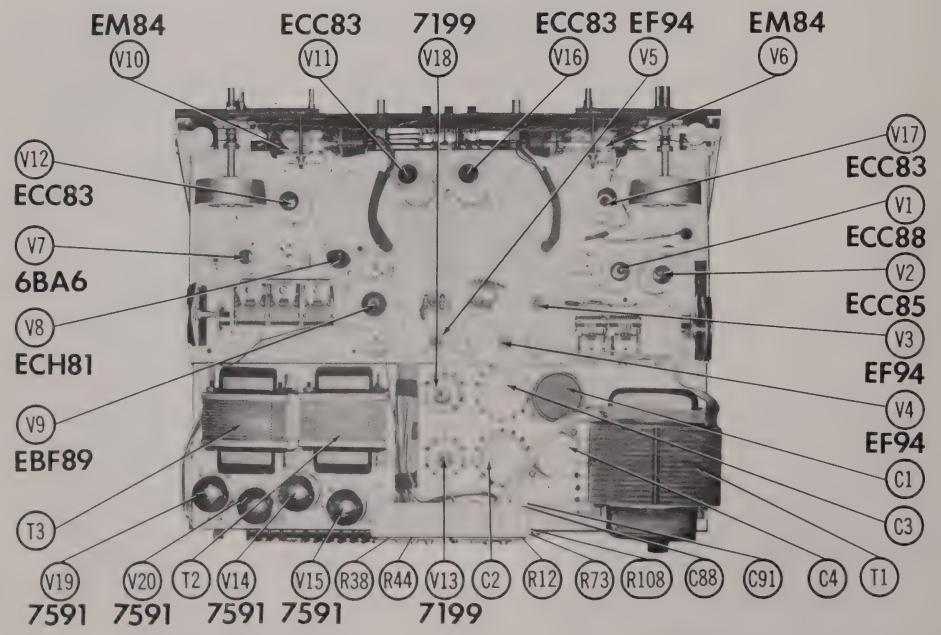


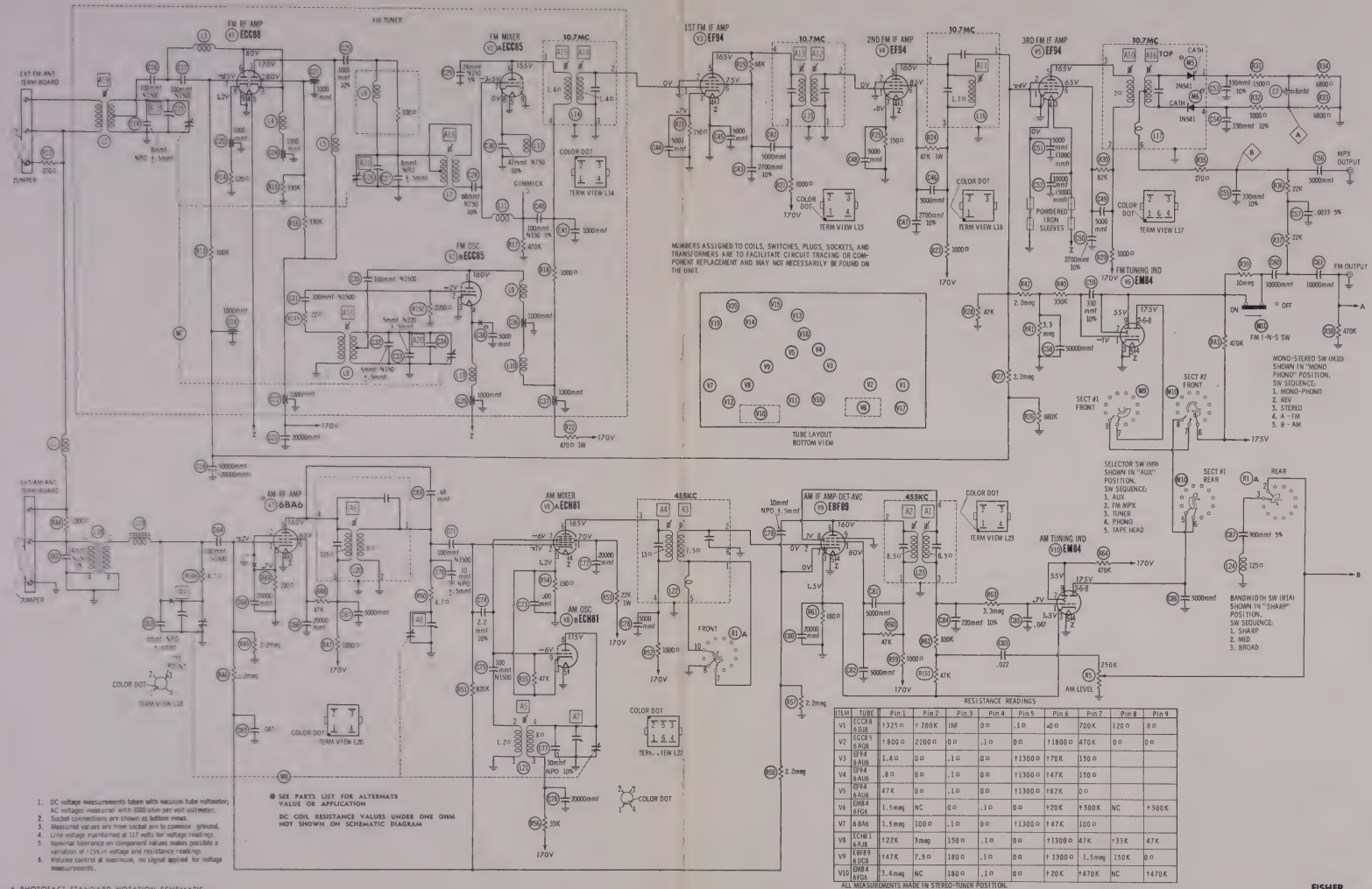
FIG. 2



CHASSIS -TOP VIEW



CHASSIS -TOP VIEW


FM TUNER
FM RF AMP V1 ECC88
FM MIXER V2 ECC85
10.7MC
1ST FM IF AMP V3 EF94
2ND FM IF AMP V4 EF94
3RD FM IF AMP V5 EF94
FM OSC V3 ECC85
FM TUNING IND V6 EM84
AM RF AMP V7 6BA6
AM MIXER V8 ECH81
AM OSC V8 ECH81
455KC
AM IF AMP-DET-AVC V9 EBF89
AM TUNING IND V10 EM84
TUBE LAYOUT BOTTOM VIEW
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
MONO-STEREO SW (M10) SHOWN IN "MONO PHONO" POSITION. SW SEQUENCE: 1. MONO-PHONO 2. REV 3. STEREO 4. A - FM 5. B - AM
SELECTOR SW (M9) SHOWN IN "AUX" POSITION. SW SEQUENCE: 1. AUX 2. FM MPX 3. TUNER 4. PHONO 5. TAPE HEAD
BANDWIDTH SW (R1A) SHOWN IN "SHARP" POSITION. SW SEQUENCE: 1. SHARP 2. MED 3. BROAD
FM 1-N-S SW
SECT #1 FRONT
SECT #2 FRONT
SECT #1 REAR
REAR
MPX OUTPUT
FM OUTPUT
AM LEVEL
TERM VIEW L14
TERM VIEW L15
TERM VIEW L16
TERM VIEW L17
TERM VIEW L18
TERM VIEW L20
TERM VIEW L22
TERM VIEW L23
COLOR DOT
GIMMICK
POWDERED IRON SLEEVES
JUMPER
EXT FM ANT TERM BOARD
EXT AM ANT TERM BOARD
ON
OFF

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC88 6DJ8	†325Ω	†200K	INF	0Ω	.1Ω	▲0Ω	700K	120Ω	0Ω
V2	ECC85 6AQ8	†800Ω	2200Ω	0Ω	.1Ω	0Ω	†1800Ω	470K	0Ω	0Ω
V3	EF94 6AU6	1.4Ω	0Ω	.1Ω	0Ω	†1300Ω	†70K	150Ω		
V4	EF94 6AU6	.8Ω	0Ω	.1Ω	0Ω	†1300Ω	†47K	150Ω		
V5	EF94 6AU6	47K	0Ω	.1Ω	0Ω	†1300Ω	†82K	0Ω		
V6	EM84 6FG6	1.5meg	NC	0Ω	.1Ω	0Ω	†20K	†500K	NC	†500K
V7	6BA6	1.5meg	100Ω	.1Ω	0Ω	†1300Ω	†47K	100Ω		
V8	ECH81 6AJ8	†22K	3meg	150Ω	.1Ω	0Ω	†1300Ω	47K	†33K	47K
V9	EBF89 6DC8	†47K	7.5Ω	180Ω	.1Ω	0Ω	†1300Ω	1.5meg	150K	0Ω
V10	EM84 6FG6	3.4meg	NC	180Ω	.1Ω	0Ω	†20K	†470K	NC	†470K

ALL MEASUREMENTS MADE IN STEREO-TUNER POSITION.
† MEASURED FROM JUNCTION OF C1 AND R141
▲ MEASURED FROM PIN 5 OF V1.

NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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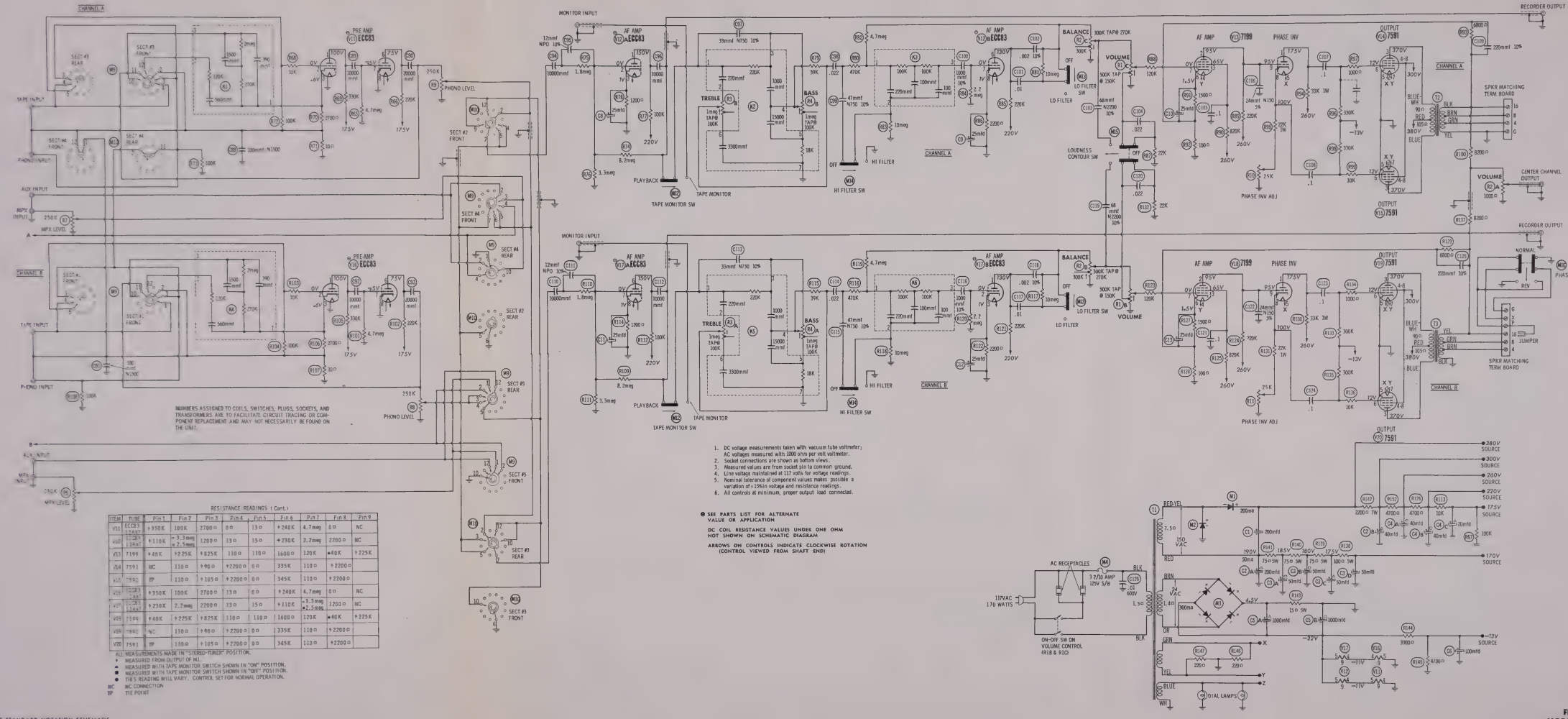
FISHER MODEL TA800

TUNER SCHEMATIC



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V11	ECC83 1st A+F	+350K	100K	2700Ω	0Ω	13Ω	+240K	4.7meg	0Ω	NC
V12	ECC83 2nd A+F	+110K	3.3meg ±2.5meg	1200Ω	13Ω	15Ω	+230K	2.2meg	2200Ω	NC
V13	7199	+48K	+225K	+825K	110Ω	110Ω	1600Ω	120K	+40K	+225K
V14	7591	NC	110Ω	+90Ω	+2200Ω	0Ω	335K	110Ω	+2200Ω	
V15	7591	TP	110Ω	+105Ω	+2200Ω	0Ω	345K	110Ω	+2200Ω	
V16	ECC83 1st A+F	+350K	100K	2700Ω	13Ω	0Ω	+240K	4.7meg	0Ω	NC
V17	ECC83 2nd A+F	+230K	2.2meg	2200Ω	13Ω	15Ω	+110K	3.3meg ±2.5meg	1200Ω	NC
V18	7199	+48K	+225K	+825K	110Ω	110Ω	1600Ω	120K	+40K	+225K
V19	7591	NC	110Ω	+90Ω	+2200Ω	0Ω	335K	110Ω	+2200Ω	
V20	7591	TP	110Ω	+105Ω	+2200Ω	0Ω	345K	110Ω	+2200Ω	

ALL MEASUREMENTS MADE IN "STEREO-TUNER" POSITION.
+ MEASURED FROM OUTPUT OF M1.
▬ MEASURED WITH TAPE MONITOR SWITCH SHOWN IN "ON" POSITION.
■ MEASURED WITH TAPE MONITOR SWITCH SHOWN IN "OFF" POSITION.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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FISHER MODEL TA800

AMP SCHEMATIC

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	FM RF Amplifier	ECC88/6DJ8
V2	FM Mixer-FM Osc.	ECC85/6AQ8
V3	1st FM IF Amplifier	EF94/6AU6
V4	2nd FM IF Amplifier	EF94/6AU6
V5	3rd FM IF Amplifier	EF94/6AU6
V6	FM Tuning Indicator	EM84/6FG6
V7	AM RF Amplifier	6BA6 (EM93) *
V8	AM Mixer-AM Osc.	ECH81/6AJ8
V9	AM IF Amp. -Det. -AVC	EBF89/6DC8
V10	AM Tuning Indicator	EM84/6FG6
V11	Channel A Preamp.	ECC83/12AX7(7025) *
V12	Channel A AF Amp.	ECC83/12AX7 (7025)*
V13	Channel A AF Amp. - Phase Inverter	7199
V14	Channel A Output	7591
V15	Channel A Output	7591
V16	Channel B Preamp.	ECC83/12AX7(7025) *
V17	Channel B AF Amp.	ECC83/12AX7(7025) *
V18	Channel B AF Amp. - Phase Inverter	7199
V19	Channel B Output	7591
V20	Channel B Output	7591

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	200	250	C50180-20	AFHS1-31-85	XA0318	FP126			
C2A	▲200	250	C50180-19		XA0318	FP126			
B	▲40	500			BR3050	TC84			
C3A	▲50	250	C50180-21	AFH4-01-70		WP412.8		TVLS-3580.7*	
B	■50	250						TVA-1512	
C	▲50	250							
D	50	250							
C4A	▲40	450	C50180-18	AFH3-43-50	C0330	FP376.9	TMT-3745	TVL-3786	
B	■40	400							
C	▲20	300							
C5A	▲1000	30	C50180-7					TVLS-2243 *	
B	▲1000	30							
C6	100	25	C643-145	PTT-25100	NLW100-25	TC2501	TD-100-25	TE-1211	
C7	8	50	C629-138	PTT-50008	NLW8-50	TT150X8	TD-8-150	TE-1303.3	
C8	25	6	C639-114	PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C9	25	6	C639-114	PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C10	25	6	C639-114	PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C11	25	6	C639-114	PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C12	25	6	C639-114	PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C13	25	6	C639-114	PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C14	8 NPO ± .5mmf		NPO-SI 8.2		C10V8C			10TCC-V82
C15		#C662-123						
C16	100 N1500	#C50070-6		TCL-100		*		
C17	100 N1500	#C50070-6		TCL-100		*		
C18	1000		EF-001	MFT-1000		CCF-102	CT280A	
C19	50000	(20000) †	BPD-05	DD-503	CUB2S5	4DP-3-503	GP150	5HK-S50
C20	1000		EF-001	MFT-1000		CCF-102	CT280A	
C21	1000		EF-001	MFT-1000		CCF-102	CT280A	
C22	1000		EF-001	MFT-1000		CCF-102	CT280A	
C23	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C24	1000		EF-001	MFT-1000		CCF-102	CT280A	

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C25	1000 10%		DI-1000	DD-102		CCD-102	GP210	10TS-D10
C26		#C662-123						
C27	8 NPO ± .5mmf		NPO-SI 8.2		C10V8C			10TCC-V82
C28	68 N750 10%		N750-SI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C29	24 N150 5%	#C50070-8				*		
C30	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C31	100 N1500	#C50070-6		TCL-100		*		
C32	5 N150 ± .5mmf	#CC20PJ050D5				*		10TCP-V50
C33	5 N220 ± .5mmf	#CC20RH050D5				*		10TCR-V50
C34		#C662-123						
C35	100 N1500	#C50070-6		TCL-100		*		
C36	1000		EF-001	MFT-1000		CCF-102	CT280A	
C37	1000		EF-001	MFT-1000		CCF-102	CT280A	
C38	5000	Note 1	BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C39	1000		EF-001	MFT-1000		CCF-102	CT280A	
C40	100 N150 5%	#C50070-19				*		10TCP-T10
C41	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C42	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C43	2700 10%		DI-2700		DPMSD27	CCD-272		10TS-D27
C44	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C45	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C47	2700 10%		DI-2700		DPMSD27	CCD-272		10TS-D27
C48	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C49	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C50	2700 10%		DI-2700		DPMSD27	CCD-272		10TS-D27
C51	5000	(1000) †	BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C52	10000	(5000) †	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	330 10%		DI-330	DD-331	L10T33	CCD-333	GP333	10TS-T33
C54	330 10%		DI-330	DD-331	L10T33	CCD-333	GP333	10TS-T33
C55	330 10%		DI-330	DD-331	L10T33	CCD-333	GP333	10TS-T33
C56	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C57	.0033 200V 5%		V84C2D33-5%		1R5D33	CM-20B-332J	MCJ462	5BF-D33
C58	50000		BPD-05	DD-503	CUB2S5	4DP-3-503	GP150	5HK-S50
C59	330 10%		DI-330	DD-331	L10T33	CCD-333	GP333	10TS-T33
C60	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C61	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C62	24 N150 5%	#C50070-8				*		
C63	5 NPO ± .5mmf		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C64	100 N1500	#C50070-6		TCL-100		*		
C65	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C66	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C67	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C68	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C69	.68		NPO-SI .68	TCZ-R68				
C70	10 NPO ± .5mmf		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C71	100 N1500	#C50070-6		TCL-100		*		
C72	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C73	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C74	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C75	100 N1500	#C50070-6		TCL-100		*		
C76	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C77	10NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C78	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C79	10 NPO ± .5mmf		NPO-SI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C80	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C81	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C82	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C83	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C84	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C85	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C86	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C87	900 5%				5R5T9	CM-19B-911J		MS-39
C88	100 N1500	#C50070-6		TCL-100		*		
C89	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C90	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C91	100 N1500	#C50070-6		TCL-100		*		
C92	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C93	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C94	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C95	12 NPO 10%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C96	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C97	33 N750 10%		N750-D1 33	DTN-33	C10Q33C	CCTN-330	CN7-433	10TCU-Q33
C98	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C99	47 N750 10%		N750-D1 47	DTN-47	C10Q47C	CCTN-470	CN7-447	10TCU-Q47
C100	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	B-210	10TS-D10
C101	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C102	.002 200V 10%		V84C6D2-10%		PM6D2	6DP-1-202	GEM-1622	6TM-D20
C103	68 N2200 10%	#C50070-12				*		
C104	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C105	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C106	24 N150 5%	#C50070-8				*		
C107	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C108	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C109	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C110	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C111	12 NPO 10%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C112	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C113	33 N750 10%		N750-D1 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C114	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C115	47 N750 10%		N750-D1 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C116	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C117	.01 250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C118	.002 200V 10%		V84C6D2-10%		PM6D2	6DP-1-202	GEM-1622	6TM-D20
C119	68 N2200 10%	#C50070-12				*		
C120	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C121	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C122	24 N150 5%	#C50070-8				*		
C123	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C124	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C125	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C126	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

Note 1. Not used in some versions.
Fisher Part Number.
† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FISHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	Switch		R50160-50					Selector
B	500K	½						Volume, Channel B
	150K Tap							
C	500K	½						Volume, Channel A
	150K Tap							
D	Switch							Power-On-On
R2A	1000Ω	½	R50160-47					Volume, Center Channel
B	300K *	½						Balance, Channel B
C	300K ▲	½						Balance, Channel A
R3A	1meg ♦	½	R50160-19	F1-52		† QJ-1140R		Treble, Channel B
B	1meg ♦	½		R2-52				Treble, Channel A
R4A	1meg ♦	½	R50160-19	F1-52		† QJ-1140R		Bass, Channel B
B	1meg ♦	½		R2-52				Bass, Channel A
R5	250K	1/4	R50160-3	JL-254			MLC254L	AM Level
R6	250K	1/4	R50160-3	JL-254			MLC254L	MPX Level, Channel B

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FISHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R7	250K	1/4	R50160-3	JL-254			MLC254L	MPX Level, Channel A
R8	250K	1/4	R50160-3	JL-254			MLC254L	Phono Level, Channel B
R9	250K	1/4	R50160-3	JL-254			MLC254L	Phono Level, Channel A
R10A	25K	½	R806-125	AB-26	A47-25K-S	Q11-120	SU-29	Phase Inv. Adj., Channel A
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R11A	25K	½	R806-125	AB-26	A47-25K-S	Q11-120	SU-29	Phase Inv. Adj., Channel B
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	

* 270K Tap not used.
▲ 30K Tap not used.
♦ 100K Tap not used.

† "CONCENTRIKIT" Equivalent: K-6 kit with base elements and shafts. (Not available as a factory assembled unit) B18-137X, P14-121 (Panel). B18-137X, R1-200 (Rear).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	270Ω				R60	47K			
R13	100K				R61	180Ω			
R14	120Ω				R62	100K			
R15	330K				R63	3.3meg			
R16	330K				R64	470K			
R17	470K				R65	4.7meg			
R18	1000Ω				R66	220K			
R19	68K				R67	100K			
R20	150Ω				R68	10K			
R21	1000Ω				R69	330K			
R22	470Ω 1W				R70	2700Ω			
R23	1000Ω				R71	10Ω			
R24	47K 1W				R72	100K			
R25	150Ω				R73	100K			
R26	680K				R74	8.2meg			
R27	2.2meg				R75	1.8meg			
R28	47K				R76	3.3meg			
R29	1000Ω				R77	100K			
R30	82K				R78	1200Ω			
R31	1500Ω				R79	39K			
R32	1000Ω				R80	470K			
R33	6800Ω				R81	10meg			
R34	6800Ω				R82	4.7meg.			
R35	270Ω				R83	10meg			
R36	22K				R84	2.2meg			
R37	22K				R85	220K			
R38	470K				R86	2200Ω			
R39	10meg				R87	22K			
R40	330K				R88	120K			
R41	3.3meg				R89	220K			
R42	2.2meg				R90	820K			
R43	470K				R91	1500Ω			
R44	1000Ω				R92	100Ω			
R45	2.2meg				R93	6800Ω			
R46	2.2meg				R94	33K 1W			
R47	1000Ω				R95	22K 1W			
R48	47K				R96	330K			
R49	100Ω				R97	1000Ω			
R50	4.7Ω				R98	330K			
R51	820K				R99	10K			
R52	1000Ω				R100	8200Ω			
R53	22K 1W				R101	4.7meg			
R54	150Ω				R102	220K			
R55	47K				R103	10K			
R56	33K 1W				R104	100K			
R57	2.2meg				R105	330K			
R58	2.2meg				R106	2700Ω			
R59	1000Ω				R107	10Ω			

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R108	100K			
R109	8.2meg			
R110	1.8meg			
R111	3.3meg			
R112	100K			
R113	10K			
R114	1200Ω			
R115	39K			
R116	470K			
R117	10meg			
R118	10meg			
R119	4.7meg			
R120	2.2meg			
R121	220K			
R122	2200Ω			
R123	120K			
R124	220K			
R125	820K			
R126	4700Ω			
R127	1500Ω			
R128	100Ω			
R129	6800Ω			
R130	33K 1W			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R131	22K 1W			
R132	22K			
R133	300K			
R134	1000Ω			
R135	300K			
R136	10K			
R137	8200Ω			
R138	100Ω 5W	PW5-100	5W-SQ-100	#R592-185
R139	75Ω 5W	PW5-75	5W-SQ-75	#R684-140
R140	75Ω 5W	PW5-75	5W-SQ-75	#R684-140 *
R141	75Ω 5W	PW5-75	5W-SQ-75	#R684-140
R142	2200Ω 7W	PW10-2200		#R563-148
R143	15Ω 5W	PW5-15	5W-SQ-15	
R144	3300Ω			
R145	4700Ω			
R146	220Ω			
R147	220Ω			
R148	4.7Ω			
R149	22Ω			
R150	2200Ω			
R151	47K			
R152	4700Ω			

Fisher Part Number.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	FISHER PART No.	REPLACEMENT DATA
K1	Preamp. Input Comp.	390mmf, 560mmf, 1500mmf, 120K, 270K, 2meg	PC50187-3	
K2	Tone Comp.	220mmf, 1000mmf, 3300mmf, 15000mmf, 18K, 220K	PC50187-4	
K3	Filter Comp.	100mmf, 220mmf, 220mmf, 100K, 100K	PC50187-2	
K4	Preamp. Input Comp.	390mmf, 560mmf, 1500mmf, 120K, 270K, 2meg	PC50187-3	
K5	Tone Comp.	220mmf, 1000mmf, 3300mmf, 15000mmf, 18K, 220K	PC50187-4	
K6	Filter Comp.	100mmf, 220mmf, 220mmf, 100K, 100K	PC50187-2	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FISHER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke(3.3uh)	L50066-8	BC-564	4608	RTC-8518	T858	① Wound on 100Ω Resistor
L2	FM Ant.	L726-124					
L3	RF Choke (1uh)	L50066-2	BC-561	4602	RTC-8515	T855	
L4	RF Choke (.56uh)	L50066-19		4588	RTC-8513	T958	
L5	RF Choke (.56uh)	L50066-19		4588	RTC-8513	T958	
L6	RF Choke	L629-180 ①					
L7	FM RF	L726-126					
L8	FM Osc.	L726-125					
L9	RF Choke (1uh)	L50066-2	BC-561	4602	RTC-8515	T855	
L10	RF Choke (1.2uh)	L50066-3	BC-561	4602	RTC-8515	T855	
L11	RF Choke (1uh)	L50066-2	BC-561	4602	RTC-8515	T855	
L12	RF Choke (.56uh)	L50066-19		4588	RTC-8513	T958	
L13	Fil. Choke(1.2uh)	L50066-3	BC-561	4602	RTC-8515	T855	
L14	1st FM IF	ZZ662-117	FM-256	1463-PC	RTC-9046	T854	
L15	2nd FM IF	ZZ2987	FM-254	1463	RTC-8599	T633	
L16	Limiter	L670-145					
L17	Ratio Detector	ZZ592-170	FM-255	1465	RTC-8600	T635	
L18	AM Ant.	L721-139	BC-380	70-A	RTC-8731	T500	
L19	Loopstick	L50210-24	BC-419	705-A		T532	
L20	AM RF	L50210-23					
L21	AM Osc.	L50210-21	BC-387	71-OSC	RTC-8648	T509	
L22	1st AM IF	ZZ50210-1					
L23	2nd AM IF	ZZ2984	BC-352	12-C2	RTC-8633	T608	
L24	10KC Filter	L644-120					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	FISHER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ 1.65A	150V Ⓐ .750A AC	24V Ⓐ .500A AC	T806-115					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 3.6A	6.3V Ⓐ 2.9A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FISHER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6300Ω CT	16Ω Tap Ⓐ 8Ω, 4Ω	T806-127					
T3	6300Ω CT	16Ω Tap Ⓐ 8Ω, 4Ω	T806-127					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	FISHER PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.200A	*	1N1763 *	F6 *	SR500 *	* Silicon Type
M2	.200A	*	1N1763 *	F6 *	SR500 *	♦ Selenium Bridge
M3	.300A	♦				

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FISHER PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M4	3AG	3 2/10A 125V S/B	F3319	X1036	31303.2 (3AG 3 2/10A 125V S/B)	342001	MDX 3 2/10	HKP

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		FISHER PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M5	1N541	V-1N541 *		1N295	1N295	* Matched Pair. Some versions may use Part #V-1N542.
M6	1N541	V-1N541 *		1N295	1N295	

MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M7	Tuning Cap.	C726-116	FM 2 Gang
M8	Tuning Cap.	C684-127	AM, 3 Gang(Ant. 10-505mmf, RF 10-503mmf, Osc. 7-138mmf)
M9	Switch	S720-154	Function Selector (Rotary Wafer Type)
M10	Switch	S270-151	Mono-Stereo (Rotary Wafer Type)
M11	Switch	S50200-2	FM 1-NS On-Off (DPDT Slide Type)
M12	Switch	S50200-2	Tape Monitor (DPDT Slide Type)
M13	Switch	S50200-2	Lo Filter (DPDT Slide Type)
M14	Switch	S50200-2	Hi Filter (DPDT Slide Type)
M15	Switch	S50200-2	Loudness Contour (DPDT Slide Type)
M16	Switch	S50200-2	Phase (DPDT Slide Type)

WIRING DATA

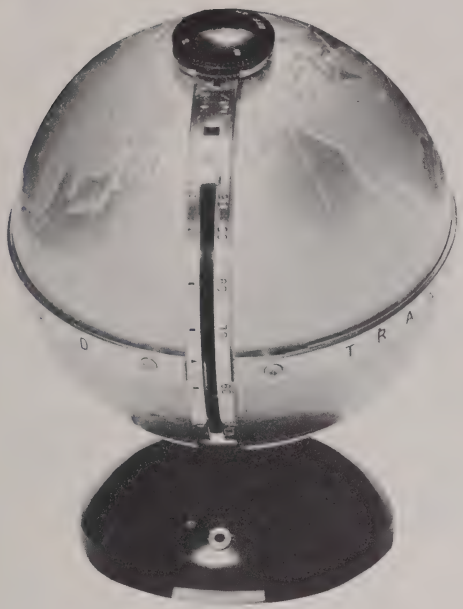
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

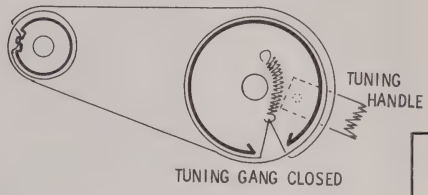
PHOTOFACT® Folder with CIRCUITRACE®

FLEETWOOD
MODEL NTR-6G

FLEETWOOD
MODEL NTR-6G



DRIVE CORD STRINGING



SIDE VIEW

FLEETWOOD
MODEL NTR-6G

TRADE NAME	Fleetwood Model NTR-6G
SUPPLIER	Sterling Hi-Fidelity, Inc., 22-14 40th Ave., Long Island City 1, N. Y.
TYPE SET	Battery Operated Transistorized AM Receiver
POWER SUPPLY	9 Volts DC
RATING	8MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 – 1605KC
	15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A4, A6.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291

WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC	"	A6	Adjust for maximum output. Repeat Steps 2, 3, and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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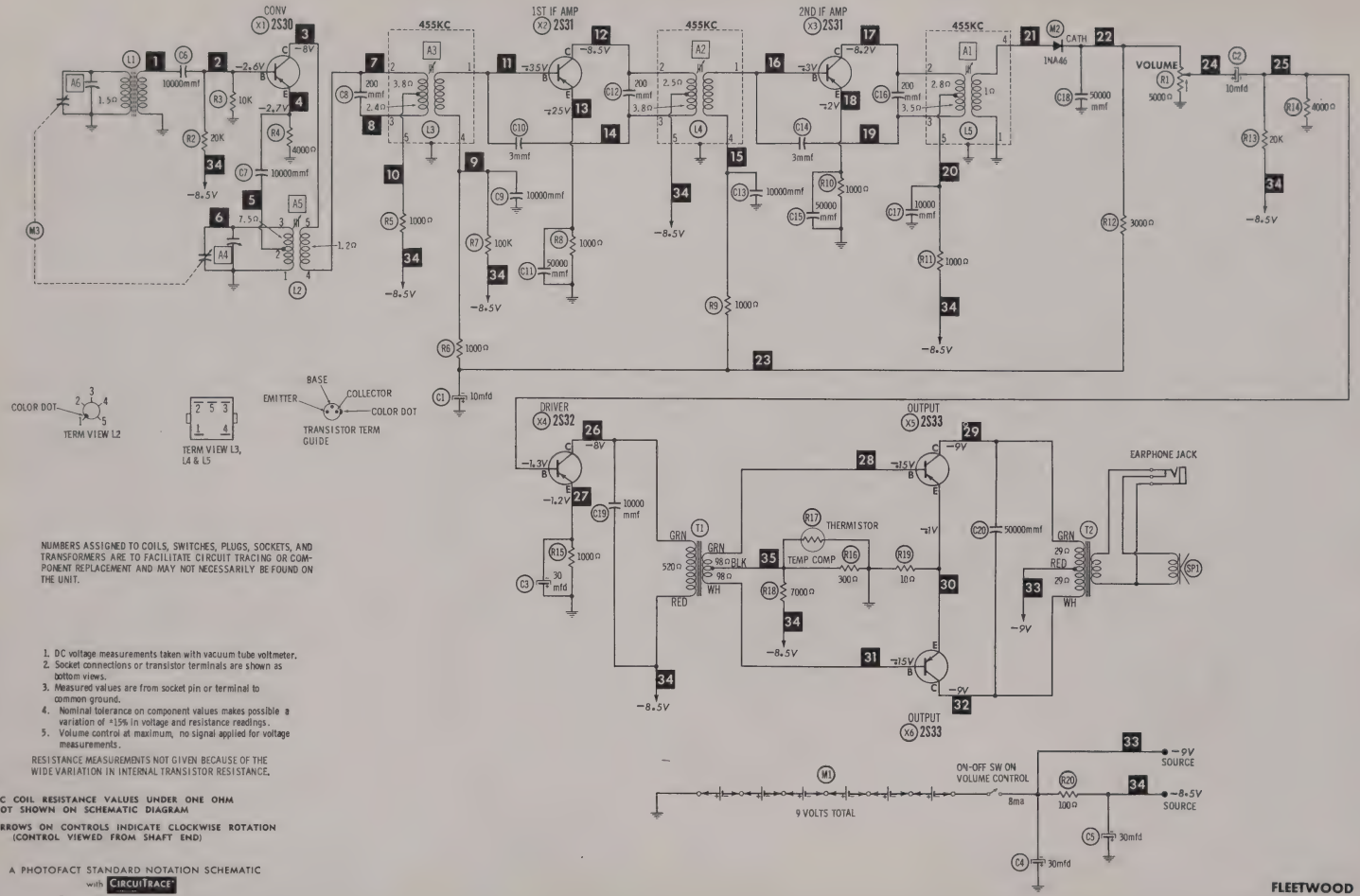

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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FLEETWOOD MODEL NTR-6G

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S30	Converter	2N412	2N486		PNP
X2	2S31	1st IF Amplifier	2N410	2N483		PNP
X3	2S31	2nd IF Amplifier	2N410	2N483		PNP
X4	2S32	Driver	2N406	2N363		PNP
X5	2S33	Output	2N408	2N632		PNP
X6	2S33	Output	2N408	2N632		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	FLEETWOOD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	6		PTT-6010	NLW10-6	TT6X10	MLV10-6	TE-1087	
C2	10	6		PTT-6010	NLW10-6	TT6X10	MLV10-6	TE-1087	
C3	30	6		PTT-6030	NLW30-6	TT6X30	MLV30-6	TE-1092	
C4	30	12		PTT-12030	NLW30-15	TT15X30	MLV35-15	TE-1158	
C5	30	12		PTT-12030	NLW30-15	TT15X30	MLV35-15	TE-1158	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	3		NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C11	50000		C80V503AM	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C12	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	3		NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C15	50000		C80V503AM	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C16	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C17	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	50000		C80V503AM	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	50000		C80V503AM	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FLEETWOOD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	½						Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	20K			
R3	10K			
R4	4000Ω			
R5	1000Ω			
R6	1000Ω			
R7	100K			
R8	1000Ω			
R9	1000Ω			
R10	1000Ω			
R11	1000Ω			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R12	3000Ω			
R13	20K			
R14	4000Ω			
R15	1000Ω			
R16	300Ω			
R17	Temp. Comp.			
R18	7000Ω			
R19	10Ω			
R20	100Ω			

PRINTED BOARD

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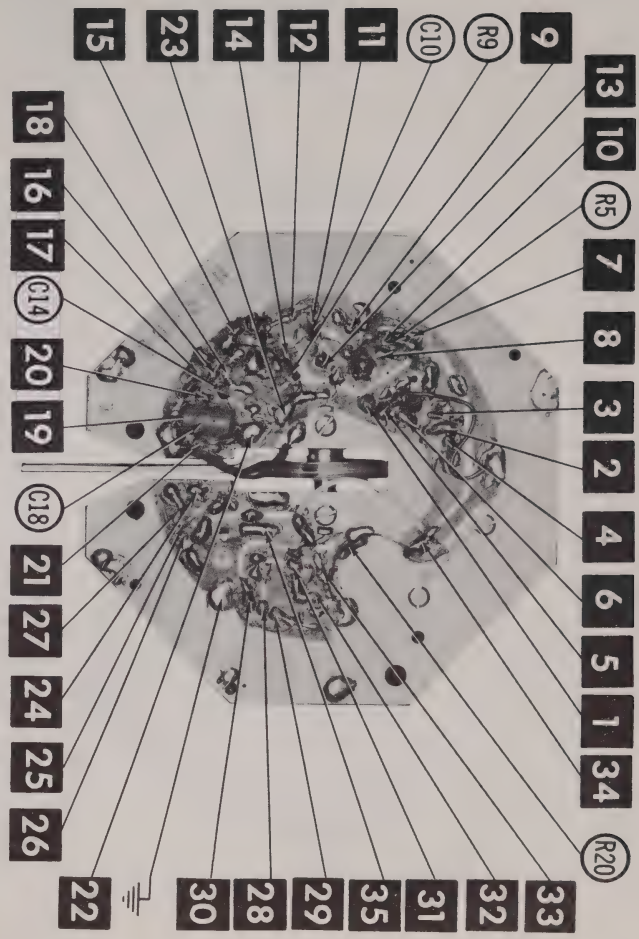


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FLEETWOOD PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick						
L2	Osc.						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FLEETWOOD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.7	1	1006GA					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FLEETWOOD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	700Ω CT	6-8Ω	OT-6G		TA-25			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FLEETWOOD PART No.	QUAM PART No.	
SP1	3"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	FLEETWOOD	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
		PART No.	"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	UM-3A *		930 *		1015*		M-15R*	* 6 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		FLEETWOOD PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1NA4G			1N60	1N60	Detector

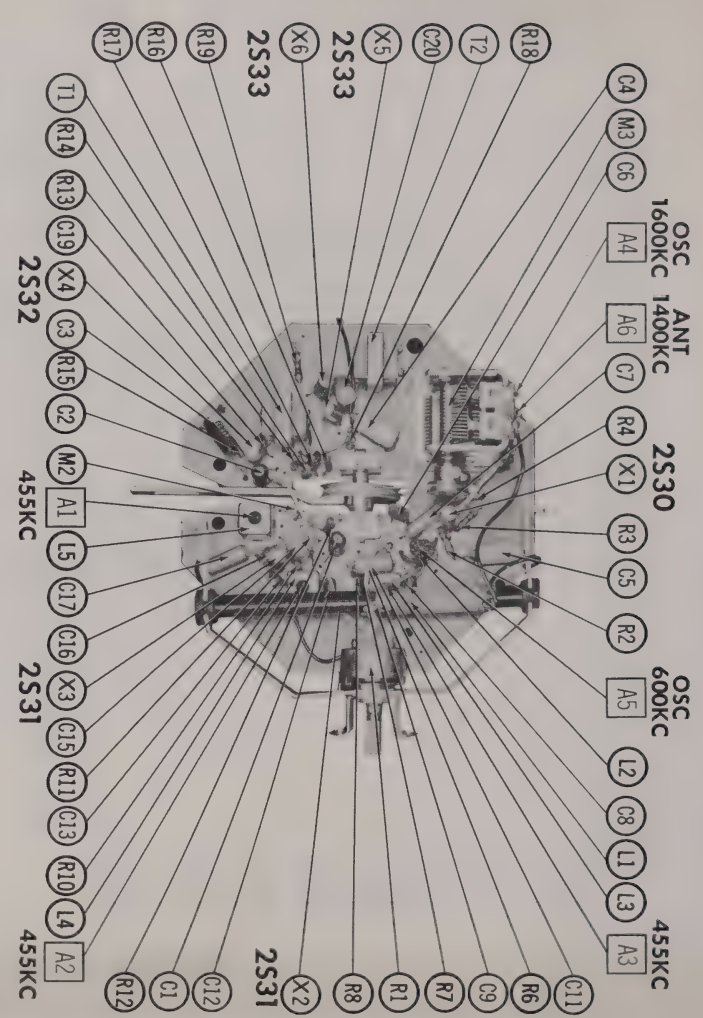
MISCELLANEOUS

ITEM No.	PART NAME	FLEETWOOD PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

GLOBE
MODEL CB-100

GLOBE
MODEL CB-100

GLOBE
MODEL CB-100

TRADE NAME	Globe Model CB-100
MANUFACTURER	Globe Electronics, A Div. of Textron Electronics, Inc., 22-30 S. 34th St., Council Bluffs, Iowa
TYPE SET	AC (or) Battery Operated 10 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery (Versions for 6 volt Storage Battery Operation are also available.
RATING	72 Watts, .8 Amp. @117 Volts AC (or) 5 Amp. @12.6 Volts DC (or) 10 Amp. @6.3 Volts DC
TUNING RANGE	Any 3 of Citizens Band Channels 1 thru 22

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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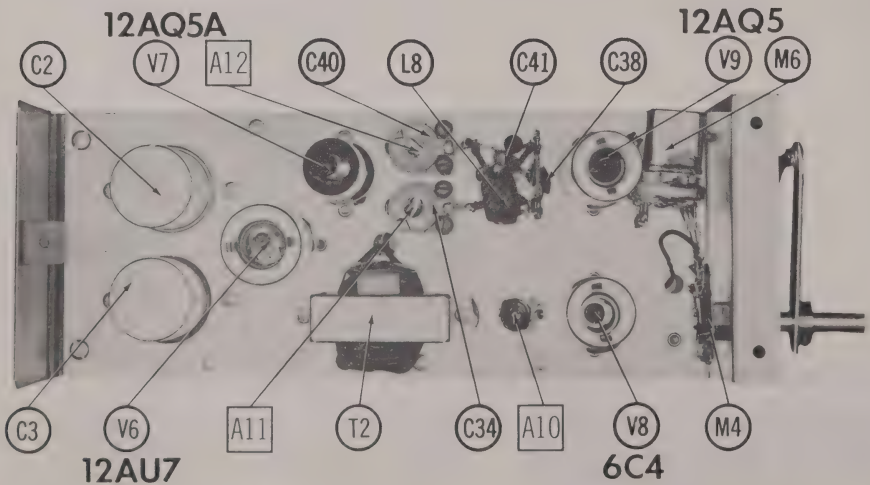
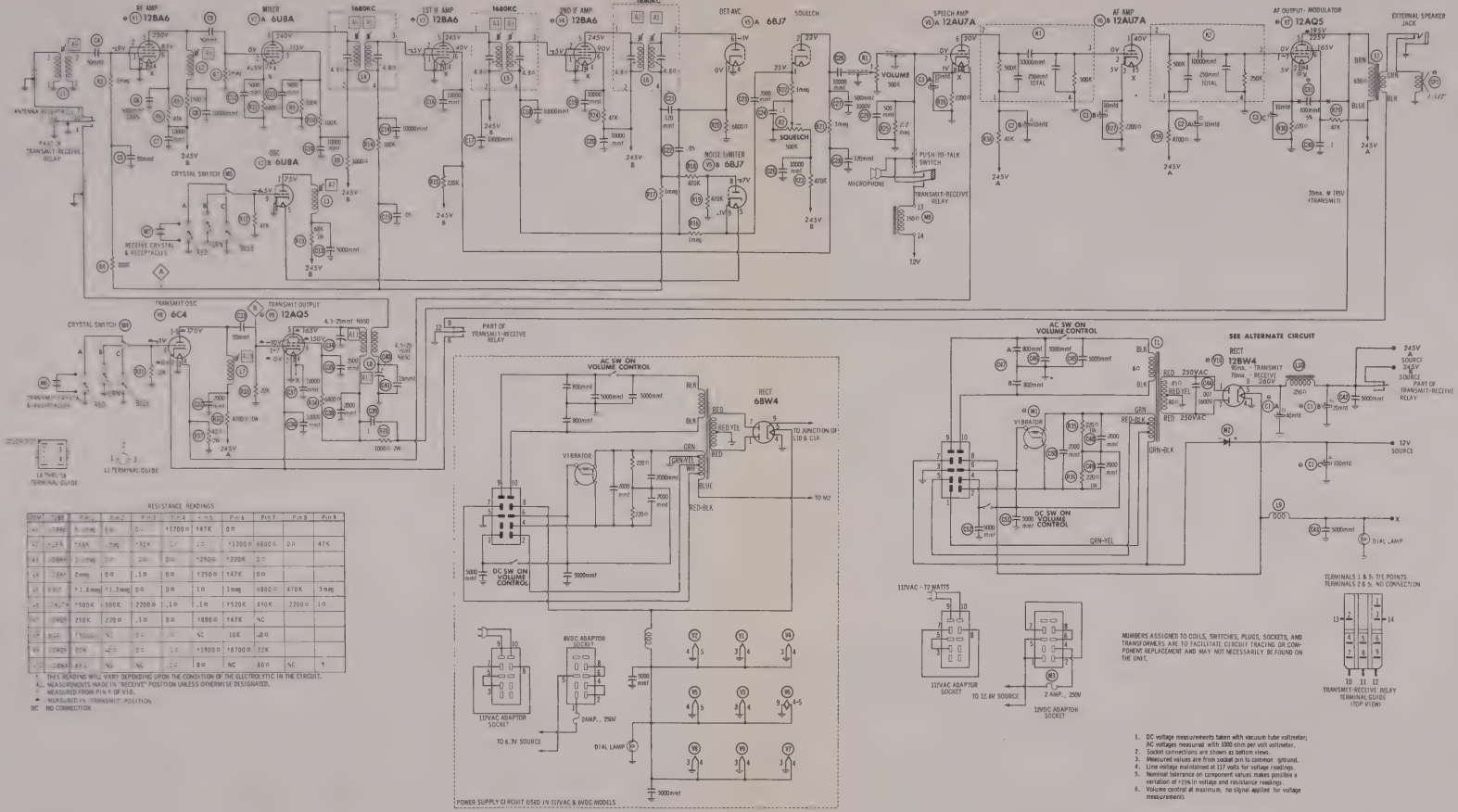
KZ406

POWER CHASSIS - BOTTOM VIEW

TRANSMITTER CHASSIS-BOTTOM VIEW



TRANSMITTER CHASSIS-TOP VIEW



RESISTANCE READINGS

SOCKET	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	0 ohms	0	0	*17000 Ω	147K	0 Ω			
V2	6U8A	*58K	0 ohms	*35K	0	0	*12000 Ω	6800 Ω	0 Ω	47K
V3	12BA6	0 ohms	0 Ω	0 Ω	0 Ω	*220K	*220K	0 Ω		
V4	12BA6	2 meg	0 Ω	.1 Ω	0 Ω	*250 Ω	147K	0 Ω		
V5	6BJ7	*1.8 meg	*1.2 meg	0 Ω	0 Ω	1.0	1 meg	6800 Ω	470K	3 meg
V6	12AU7A	*500K	*500K	2200 Ω	.1 Ω	.1 Ω	*520K	440K	2200 Ω	1.0
V6	12AU7A	250K	220 Ω	.1 Ω	0 Ω	*1880 Ω	147K	NC		
V7	12AQ5	*1000 Ω	NC	0 Ω	.1 Ω	NC	10K	480		
V8	12AQ5	20K	480	0 Ω	.1 Ω	*1900 Ω	*1700 Ω	22K		
	12BW4	85 Ω	NC	NC	1.0	80	NC	800 Ω	NC	*

* THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
MEASURED FROM PIN 9 OF V1B.
MEASURED IN TRANSMIT POSITION.
NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

⊛ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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GLOBE
MODEL CB-100

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT		
Suggested Alignment Tools:	A1 thru A6	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
	A7, A8, A9, A10	GENERAL CEMENT #8721, 8722 WALSCO #2519
	A11, A12	GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089 WALSCO #2512, 2525, 2528

RECEIVER ALIGNMENT

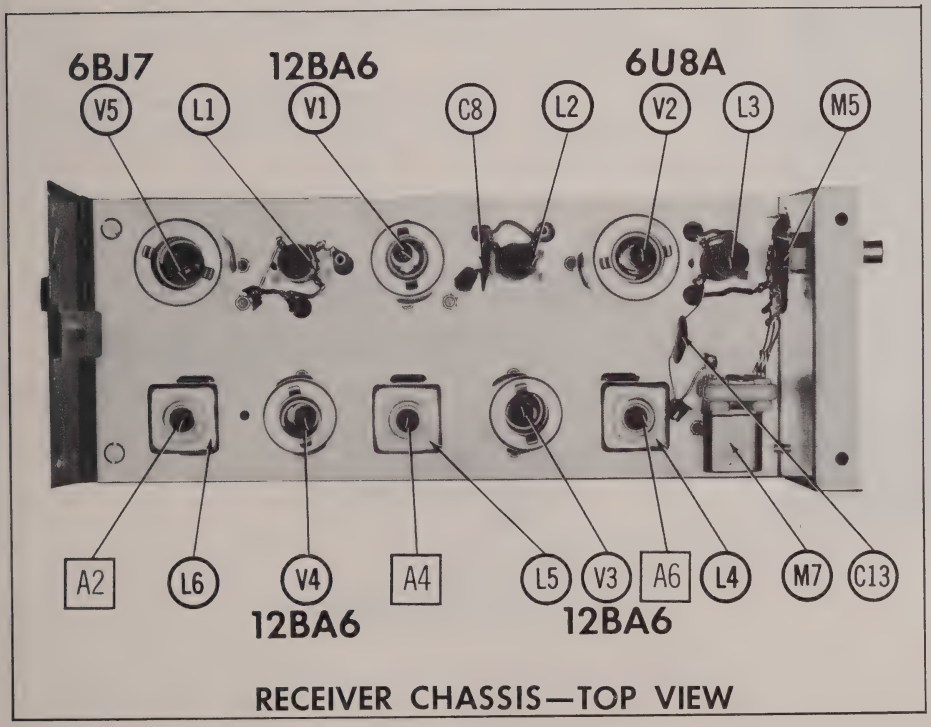
Set Squelch Control (R2) to maximum counterclockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 2 (grid) of V2 (mixer). Low side to chassis.	1680KC (400~ Mod.)		DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6, A7	Adjust for maximum deflection. Adjust A7 from maximum inductance toward minimum inductance for abrupt meter rise.
	Disconnect VTVM and tune oscillator signal on an accurately calibrated receiver. (Signal will be 1680KC above the Channel Frequency in use.) If more than one channel is to be used, it may be necessary to "average" the oscillator adjustment (A7) to keep crystals within operating frequency limits (± 1000~).					
2.	High side to antenna jack, common to chassis.	Channel Desired		DC probe to point (A). Common to chassis.	A8, A9	Adjust for maximum deflection. If signal injected is excessive, disconnect generator and couple loosely to jack.

TRANSMITTER ALIGNMENT

Connect DC probe of VTVM to point (A), common to chassis. Adjust A10 for maximum deflection.

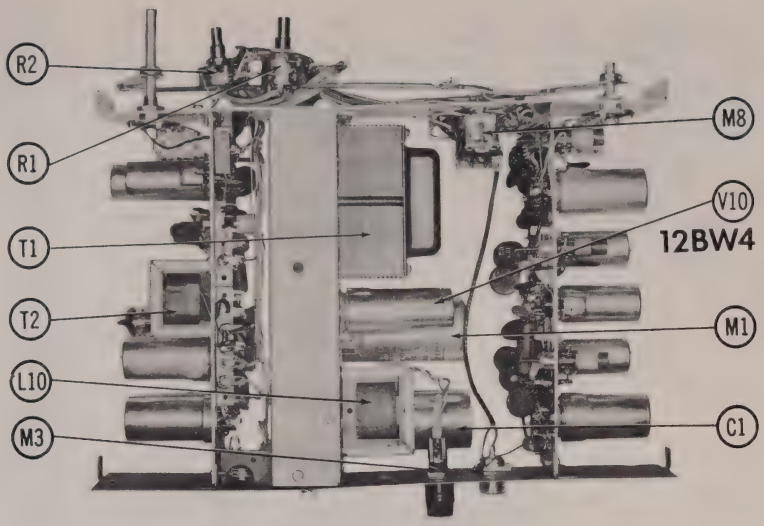
Remove VTVM and connect a 50Ω dummy load to antenna jack. Adjust A11 and A12 for maximum output. After antenna is connected, retouch A11 and A12 for maximum output.



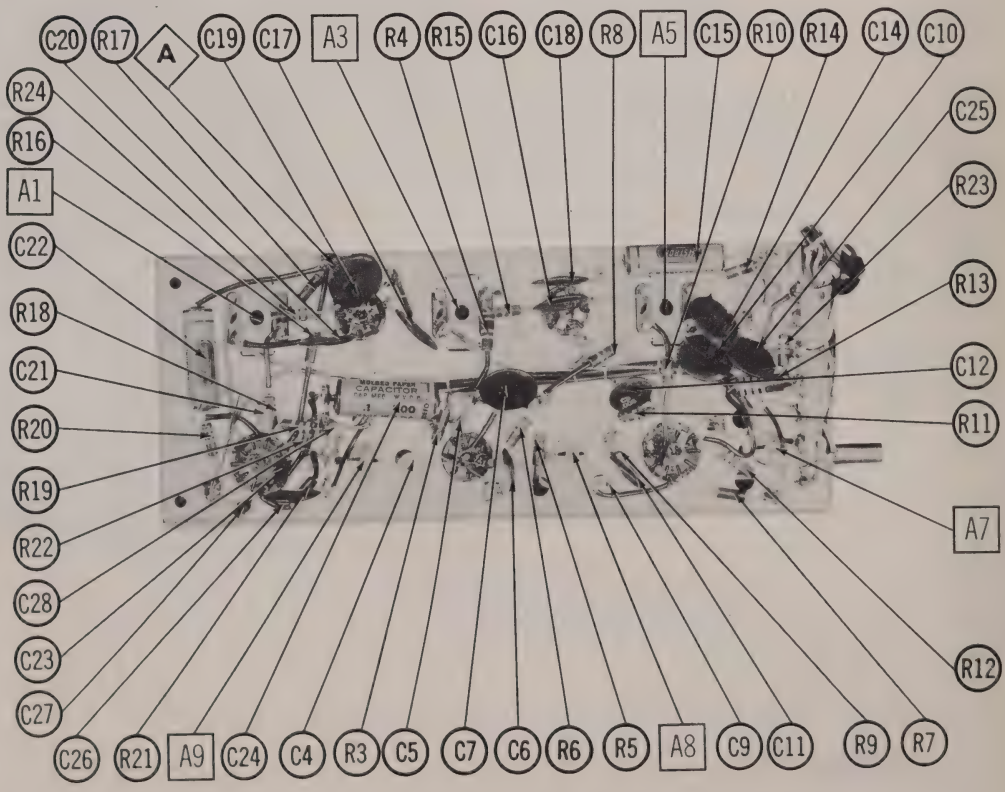
RECEIVER CHASSIS—TOP VIEW

GLOBE MODEL CB-100

FOLDER 7



COMPLETE ASSEMBLY-TOP VIEW



RECEIVER CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6 *	V6	AF Amp. -Sqeech Amp.	12AU7A
V2	Mixer-Osc.	6U8A	V7	AF Output-Modulator	12AQ5 *
V3	1st IF Amplifier	12BA6 *	V8	Trans. Osc.	6C4
V4	2nd IF Amplifier	12BA6 *	V9	Trans. Output	12AQ5 *
V5	Det. -AVC-Noise Lim-Squelch	6BJ7	V10	Rectifier	12BW4 *

* Equivalent 6V Filament Tubes used in 6 Volt Versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA GLOBE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	450	1106-023	AFH3-139-50	C1090	FP367	TMT-3685	TVL-3755	Note 1
B	▬20	450							Note 1
C	▲100	25							Note 1
C2A	■10	350	1106-022	AFH2-47	B0370	FP231	TMD-2610	TVL-2750	
B	▲10	350							
C3A	■10	25	1106-021	AFH3-22	C0240	FP330.5	TMT-3292	TVL-3580	
B	▲10	25							
C	10	25							

.Note 1. In some versions C1A and C1B may be one unit (Part #1106-020) and C1C may be a separate unit (Part #1106-019).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	50		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C5	50		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C6	5000 1000V		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	50		SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C12	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C13	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	120		SI 120	D6-121	L10T12	CCD-121	GP312	10TS-T12
C22	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C23	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C24	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	500 1000V		BPD-0005	DD-500	BYA10T5	CCD-501	B-350	10TS-T50
C28	120		SI 120	D6-121	L10T12	CCD-121	GP312	10TS-T12
C29	500		BPD-0005	DD-500	BYA10T5	CCD-501	B-350	10TS-T50
C30	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C31	100 5%	Note 1		TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-31
C32	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	50		DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C34	4.5-25 N650	#1111-001		822-CN				
C35	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C39	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C40	4.5-25 N650	#1111-001		822-CN				

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C41	15		SI 15	D6-150	L10Q15	CCD-150	GP415	10TS-Q15
C42	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C43	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C44	.007 1600V		P1684CM-007	DD16-702	CUB16D7	16DP-3-702	GEM-1627	MB-D7
C45	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C47A	800		BPD-0008	DD-801	BYA10T82	CCD-801	B-382	10TS-T80
B	800		BPD-0008	DD-801	BYA10T82	CCD-801	B-382	10TS-T80
C48	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C49	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C50	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C51	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C52	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

Note 1. Not used in some versions.
\# Globe Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GLOBE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	2300-015	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-20	76-2	US-27	Power Off-On
R2	500K	½	2300-016					Squelch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	1meg			
R4	100K			
R5	1500Ω			
R6	47K			
R7	1meg			
R8	1000Ω			
R9	100K			
R10	100K			
R11	6800Ω			
R12	47K			
R13	68K 1W			
R14	100K			
R15	220K			
R16	1meg			
R17	1meg			
R18	470K			
R19	470K			
R20	6800Ω			
R21	1meg			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R22	1meg			
R23	470K			
R24	47K			
R25	2.2meg			
R26	2200Ω			
R27	2200Ω			
R28	1000Ω 2W			
R29	47K			
R30	220Ω			
R31	10K			
R32	4700Ω 1W			
R33	22K			
R34	6800Ω			
R35	220Ω 1W			
R36	220Ω 1W			
R37	42Ω 2W			
R38	47K			
R39	4700Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	GLOBE PART No.	REPLACEMENT DATA	
K1	Audio Coupling	250mmf, 10000mmf, 500K, 500K	1109-005	Aerovox Centralab Sprague	PA-112-3 PC-80 T-1
K2	Audio Coupling	250mmf, 10000mmf, 250K, 500K	1109-001	Aerovox Centralab Sprague	PA-112-4 PC-81 T-2

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		GLOBE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	1400-104	TV-116	6250	RTC-8568	T232A	
L2	RF	1400-105	TV-118	6171-A	RTC-8609	T216	
L3	Osc. Plate	1400-103	TV-118	6171-A	RTC-8609	T216	
L4	1st IF	1205-001					
L5	2nd IF	1205-001					
L6	3rd IF	1205-001					
L7	Osc. Plate	1400-106	TV-118	6171-A	RTC-8609	T216	
L8	Output Final	1400-107					
L9	Fil. Choke	1300-018	BC-537	5219	RTC-9181		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L10	.090A	250Ω	5.4 HY	1300-017					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI. 1	SEC. 1	SEC. 2	GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .8A PRI. 2 12.6VCT @ 3A	500VCT @ .090A	12.6V @ 2A (AC Operation)	1200-018					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	17K	3-4Ω	1203-011					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	GLOBE PART No.	QUAM PART No.	
SP1	2½"	PM	3-4Ω	4002-001A *	25A07	* Alternate Part #4002-001

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				GLOBE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter Interrupter	12 6	115∿ 115∿	4001-001	G8801 5301 *	G1601 1601	G8801 5301 *	12 Volt versions 6 Volt versions

* 6 Volt Versions.

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	GLOBE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M2		3700-014 *	1N1763 *	2F4 *	SR200 *	* Silicon

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GLOBE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	2A 250V	1500-011		312002 (3AG 2A 250V)	342001	AGC 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES
M4	Switch	2100-027	Transmitter Crystal (Rotary, Wafer Type)
M5	Switch	2100-028	Receiver Crystal (Rotary, Wafer Type)
M6	Crystal		Transmitter
M7	Crystal		Receiver
M8	Relay	3500-015	
	Microphone	4000-003	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

GONSET MODELS
G-11-3303, G-11-3304, G-11-3305

GONSET MODELS
G-11-3303, G-11-3304, G-11-3305

MODEL G-11-3304

GONSET MODELS
G-11-3303, G-11-3304, G-11-3305

TRADE NAME	Gonset Models G-11-3303, G-11-3304, G-11-3305
MANUFACTURER	Gonset, Div. of Young Spring & Wire Corp., 801 S. Main Street, Burbank, California
TYPE SET	Crystal Controlled Single Channel 9 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	Model G-11-3303: 110-120 Volts AC, 60 Cycles Model G-11-3304: 12 Volt Storage Battery Model G-11-3305: 6 Volt Storage Battery
RATING	4.6 Amp. @12.6 Volts DC (or) 9.2 Amp. @6.3 Volts DC
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

ALIGNMENT INSTRUCTIONS

RECEIVER

Connect DC probe of VTVM to point Ⓐ, Common to chassis. Turn Squelch Control R2 to maximum clockwise direction.

Use a test transmitter on the proper channel, align A1, A2, A3, A4, A5 and A6 for maximum deflection on VTVM. (If signal is too strong, remove antenna to reduce signal strength sufficiently to keep AVC voltage only slightly above no signal level).

Adjust A7 for maximum receiver noise.

TRANSMITTER

Using a Frequency Meter, adjust A8 to frequency indicated on oscillator crystal, (within 100 cps).

Connect DC probe of VTVM to point Ⓑ, Common to chassis. Adjust A9 for maximum deflection.

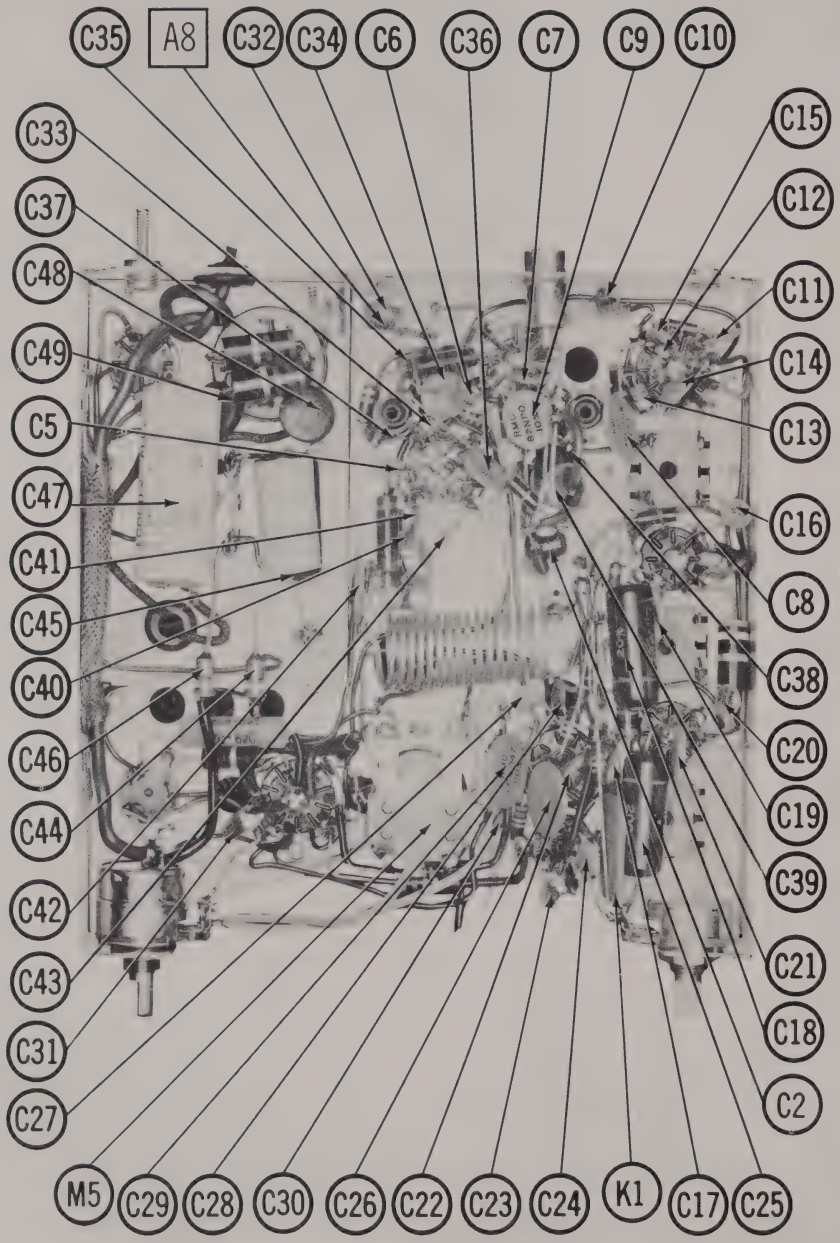
Adjust A10 and A11 alternately for maximum tuning indicator lamp brightness, adjusting A11 last.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

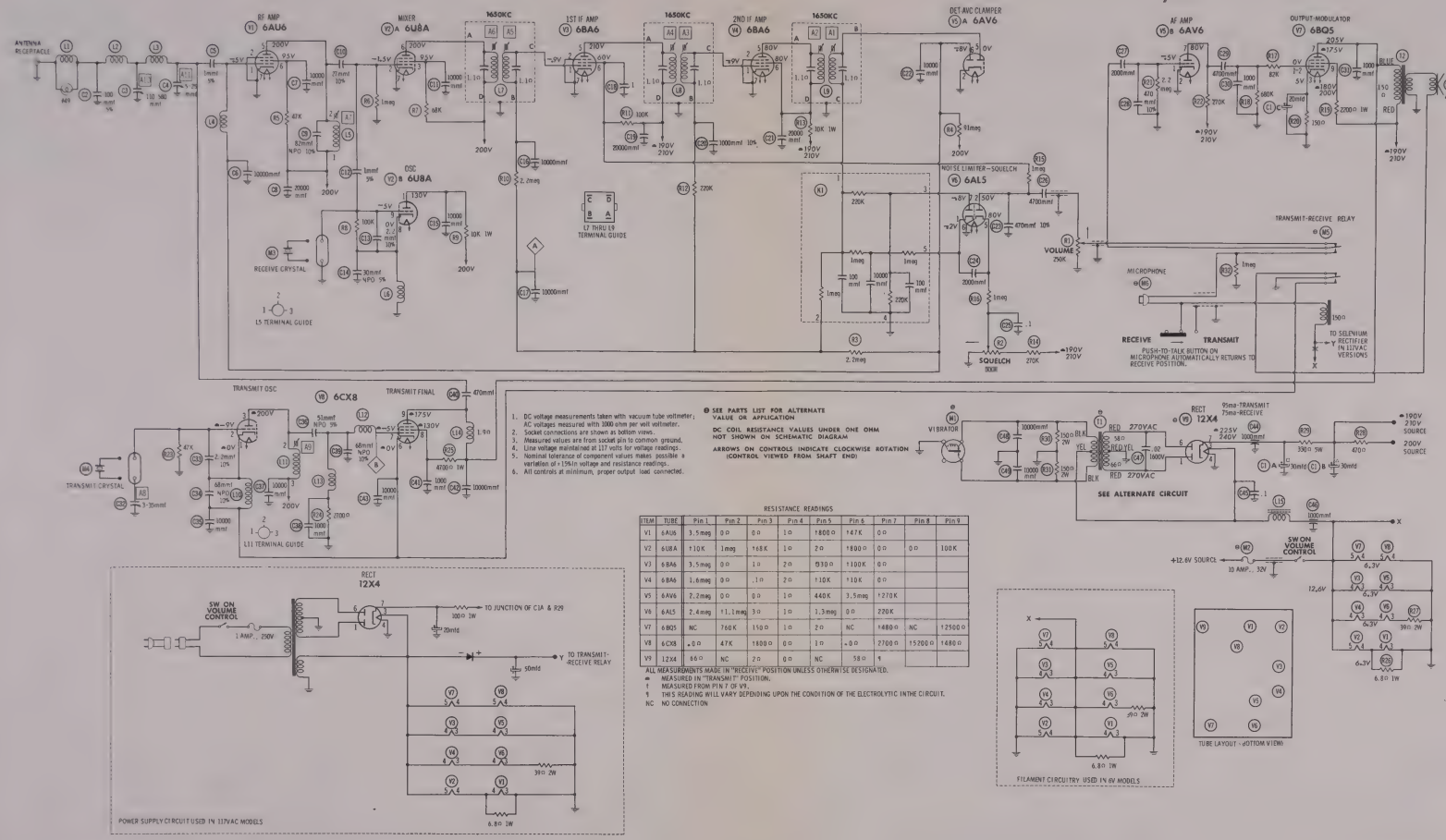
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KZ405

SET 530 FOLDER 8



CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AU6	3.5 meg	0Ω	0Ω	1Ω	†800Ω	†47K	0Ω		
V2	6U8A	†10K	1meg	†68K	1Ω	2Ω	†800Ω	0Ω	0Ω	100K
V3	6BA6	3.5 meg	0Ω	1Ω	2Ω	¶330Ω	†100K	0Ω		
V4	6BA6	1.6 meg	0Ω	.1Ω	2Ω	†10K	†10K	0Ω		
V5	6AV6	2.2 meg	0Ω	0Ω	1Ω	440K	3.5 meg	†270K		
V6	6AL5	2.4 meg	†1.1 meg	3Ω	1Ω	1.3 meg	0Ω	220K		
V7	6BQ5	NC	760K	150Ω	1Ω	2Ω	NC	†480Ω	NC	†25000Ω
V8	6CX8	▲0Ω	47K	†800Ω	0Ω	1Ω	▲0Ω	270Ω	¶5700Ω	†480Ω
V9	12X4	66Ω	NC	2Ω	0Ω	NC	58Ω	¶		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM PIN 7 OF V9.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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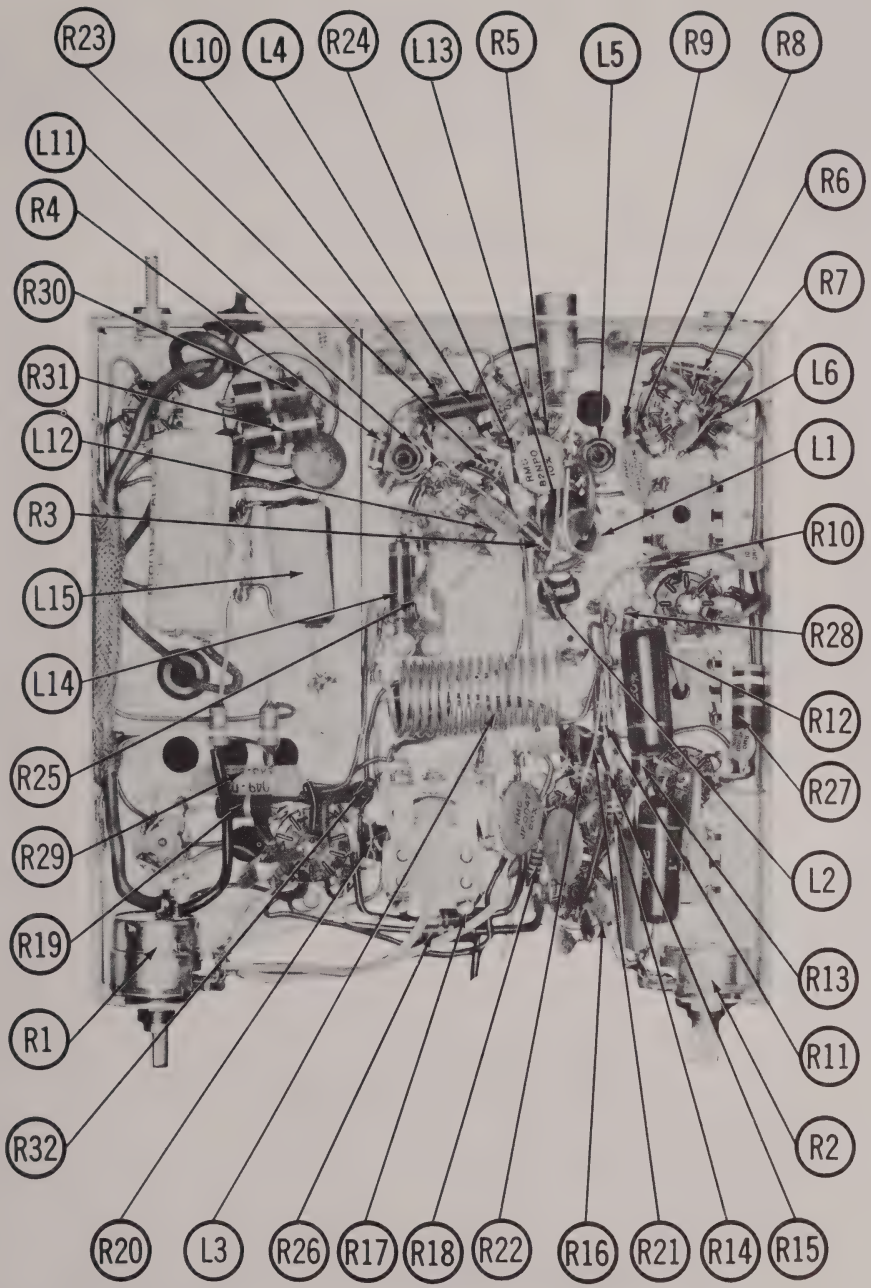
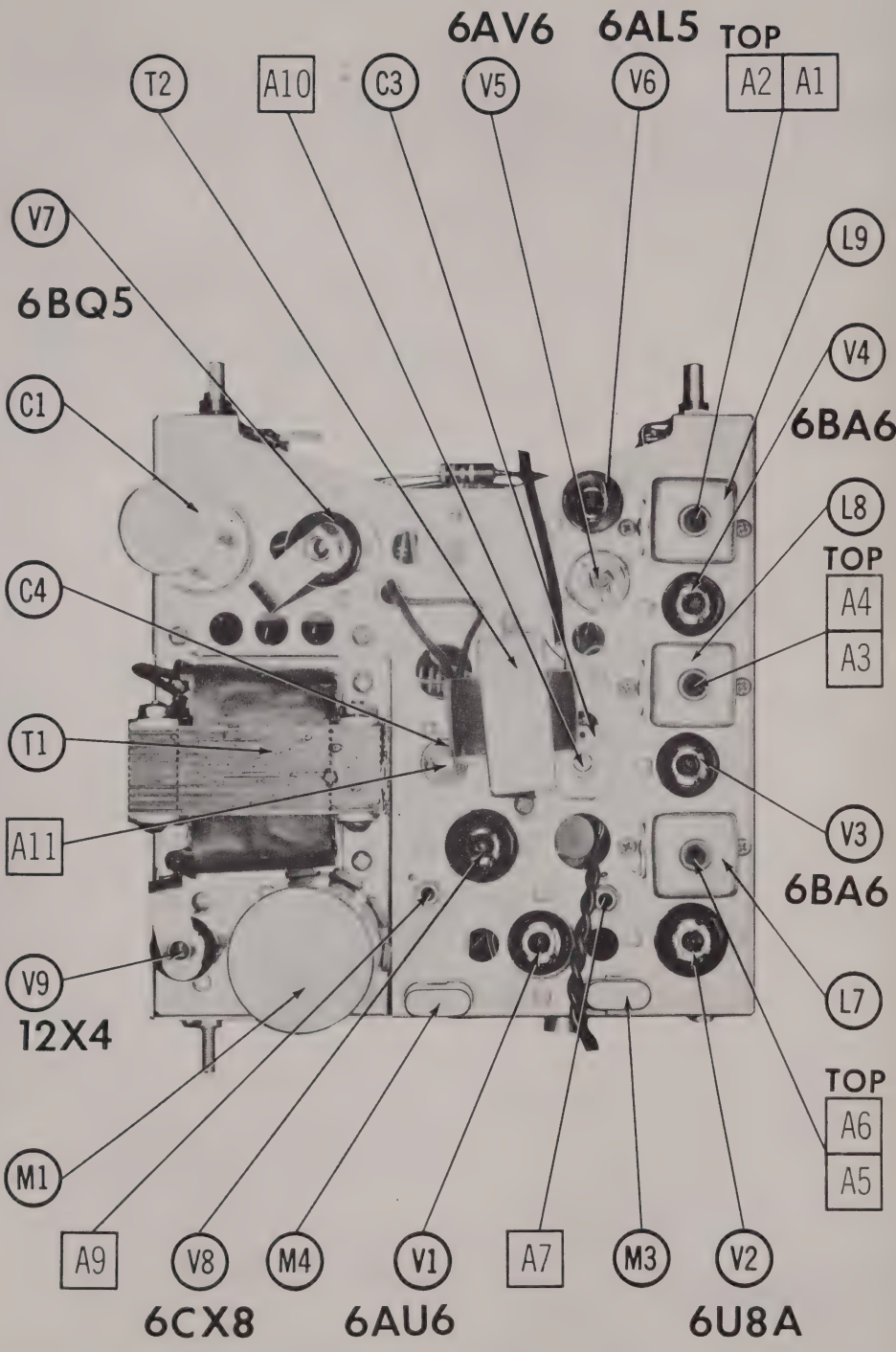
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

GONSET MODELS
G-11-3303, G-11-3304, G-11-3305



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	RF Amplifier	6AU6
V2	Mixer-Osc.	6U8A
V3	1st IF Amp.	6BA6
V4	2nd IF Amp.	6BA6
V5	Det. -AVC Clamper-AF Amp.	6AV6
V6	Noise Lim. -Squelch	6AL5
V7	Output-Modulator	6BQ5
V8	Trans. Osc. -Trans. Final	6CX8
V9	Rectifier	12X4 *

* Model 3305 uses 6X4 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA GONSET PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■30	350	073-061	AFH3-169	C0830	FP331	TMT-3334	TVL-3620	
B	▲30	300							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C3	110-580	#089-024				467		
C4	5-25	#089-031		827C		421		
C5	1 5%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C6	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C7	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C8	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	82 NPO 10%			DTZ-82	C10Q82C	CCTO-820	CNO-482	10TCC-Q82
C10	27 10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C11	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C12	1 5%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C13	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C14	30 NPO 5%			TCZ-30	C10Q3C	CM-19B-300J		10TCC-Q30
C15	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C16	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C17	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C18	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C19	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C20	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C21	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C22	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C23	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C24	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C25	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C26	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C27	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C28	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C29	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C30	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C31	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	3-35					403		
C33	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C34	68 NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C35	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C36	51 NPO 5%			TCZ-51	C10Q51C	CM-19B-510J	CNO-450	10TCC-Q50
C37	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C38	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C39	68 NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C40	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C41	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C42	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10
C43	10000		BPD-01	DD-103	H-05S1	CCD-103	TA-110	TG-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C44	1000		EF-001	MFT-1000		CCF-102	CT280A	
C45	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C46	1000		EF-001	MFT-1000		CCF-102	CT280A	
C47	.02 1600V		P1684CM-02		CUBI6S2	16DP-4-203	GEM-1612	MB-S2
C48	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

\# Gonset Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GONSET PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K	½	052-049	B-51	A47-250K-Z	Q13-130	U44	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	500K	½	052-048	B-59	A47-500K-S	Q11-133	U50	Squelch
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	2.2meg			
R4	91meg			
R5	47K			
R6	1meg			
R7	68K			
R8	100K			
R9	10K 1W			
R10	2.2meg			
R11	100K			
R12	220K			
R13	10K 1W			
R14	270K			
R15	1meg			
R16	1meg			
R17	82K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R18	680K			
R19	2200Ω 1W			
R20	150Ω			
R21	2.2meg			
R22	270K			
R23	47K			
R24	2700Ω			
R25	4700Ω 1W			
R26	6.8Ω 1W			
R27	39Ω			
R28	470Ω			
R29	330Ω 5W	PW5-330	5W-SQ-330	
R30	150Ω 2W			
R31	150Ω 2W			
R32	1meg			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA GONSET PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Output Indicator						
L2	RF Choke (.56uh)	027-077	BC-560	4588	RTC-8513	T958	
L3	Ant.	011-119					
L4	RF Choke (5.6uh)	027-028	BC-565	4609	RTC-8519	T959	
L5	RF	012-068	TV-118	6171-A	RTC-8609	T216	
L6	RF Choke (1.5uh)	027-045	BC-562	4604	RTC-8516	T856	
L7	1st IF	014-030					
L8	2nd IF	014-030					
L9	3rd IF	014-030					
L10	RF Choke (5.6uh)	027-028	BC-565	4609	RTC-8519	T959	
L11	Osc. Plate	012-169	TV-118	6171-A	RTC-8609	T216	
L12	RF Choke (.47uh)	027-073		4588	RTC-8513	T958	
L13	RF Choke (5.6uh)	027-028	BC-565	4609	RTC-8519	T959	
L14	RF Choke (15uh)	027-032		4624	RTC-8524	T862	
L15	Hash Choke (65uh)	027-027					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	GONSET PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	12.6VCT @ 2.8A	540VCT @ .095A		271-022 ①					

① Part #271-025 used in Model G11-3303 (117V)
Part #271-026 used in Model G11-3305 (6V).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	GONSET PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2700Ω	3-4Ω	272-004		A-3876			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	GONSET PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	152-015 *	4A10T *	* Weatherproof Cone

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	GONSET PART No.	REPLACEMENT DATA
K1	Noise Clipper Network	(2) 100mmf, 10000mmf, (2) 220K, (3) 1meg	069-003	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				GONSET PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.3V	115v	G1601	6301	G1601	6301	Model 3304
	Interrupter	6.3V	115v	1601	5301	1601	5301	Model 3305

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GONSET PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	10A * 32V			307010 * (SFE 10A 32V)	155009 *	SFE 10 *	HHH *
	SFE	20A ♦ 32V			311020 ♦ (SFE 20A 32V)	155020 ♦	SFE 20 ♦	HRJ ♦
	3AG	1A ♯ 250V			313001 ♯ (3AG 1A 250V)		AGC 1 ♯	

* Model 3304
♦ Model 3305
♯ Model 3303

MISCELLANEOUS

ITEM No.	PART NAME	GONSET PART No.	NOTES
M3	Crystal		Receive (order by desired Channel Freq.)
M4	Crystal		Transmit (order by desired Channel Freq.)
M5	Relay	111-019	Models 3303 & 3304
	Relay	111-082	Model 3305
M6	Microphone	113-014 (or) 113-015	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

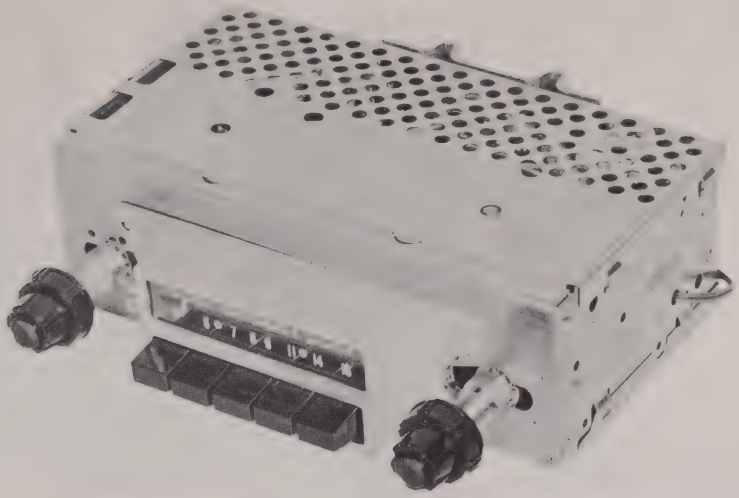
NAME	PART NO.	DESCRIPTION
Front Panel	505-203	
Cabinet	465-056	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

**MOTOROLA
MODEL 10AX**



TRADE NAME	Motorola Model 10AX
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 3 Tube 2 Transistor Universal Type Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING 1.2 Amp. @12.6 Volts DC
TUNING RANGE—BROADCAST	540 – 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A5, A6, A7.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

A8, A9, A10.....GENERAL CEMENT #8271, 8279, 8897, 9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	262.5KC (400% Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores (A8, A9, A10) 7/16" out of coils. Repeat Step 2.					
3.	Thru dummy (Fig. 1) to antenna receptacle.	1200KC	Tuner Carriage 9/32" from high end stop.	Across voice coil.	A8, A9, A10	Adjust for maximum output. Repeat Steps 2 and 3.
	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull Pushbutton out.
2. Tune manually to desired station.
3. Press Pushbutton in firmly.
4. Repeat for remaining Pushbuttons.

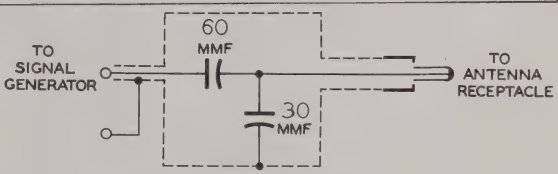


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KD480

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MOTOROLA
MODEL 10AX

MOTOROLA
MODEL 10AX

SET 530 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12AD6	V3	Det. -AVC-AF Amp.	12F8
V2	IF Amplifier	12BL6			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	4450	Driver				PNP
	MN 53*	Driver	2N591	MN53	2N591	PNP
	2N652 *	Driver				PNP
X2	2N176	Output	2N176		2N176	PNP Note 1

* Alternate Type.
Note 1. When replacing, apply DC-4 grease (Part #1M490487) or equivalent to both sides of insulator. Tighten mounting screws securely. Check bias adjustment.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■500	16	23B543279	AFH3-00-95		WP300. 85		TVLS-3026.8*	
B	▲500	16							
C	100	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

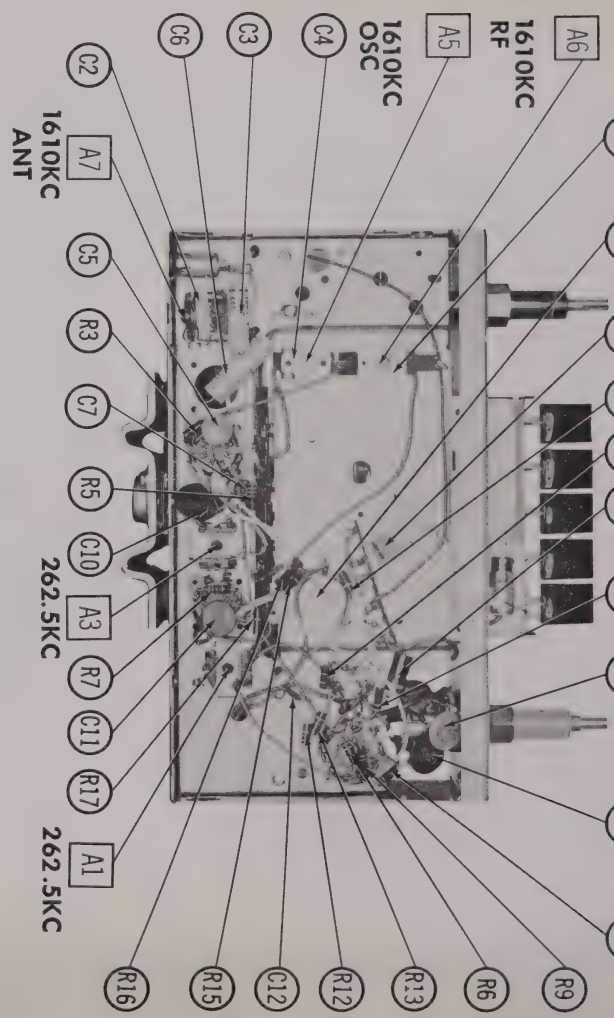
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	40-430	#20A542758						
C3	.002 1000V		P1088N-002	DD-202	CUB10D2	16DP-2-202	GEM-1022	10TM-D20
C4	20-120	#20K541014				463		
C5	82 N750 10%			TCN-82	C10Q82U	CCTN-820	CN7-482	10TCU-Q82
C6	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C7	47 N750		N750-47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C8	100 N750		N750-100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C9	310-390	#20K541700						
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C12	27 NPO 10%		NPO-DI 25	TCZ-27	C10C27C	CCTO-270	CNO-427	10TCC-C27
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	25000				DPMS6S25	4DP-2-253	GEM-4125	5HK-S25

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg		18K544507	F1-68 ①	RTV-713C			Tone
B	2meg			R2-75	Not Req.		■UE4205-S ①	Volume
	1meg Tap							
C	Switch			KR-4	Not Req.			Power Off-On
R2	300Ω	1(WW)	18K543493		39-300 *	112-300 *	FL-500 *	Bias
	36Ω Stop							

① File flat on bushing.
■ "STA-LOC" equivalent: FA26A, RU26T15, OS1687, IS2125, US41
* Use 39Ω series resistor.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	1meg				R11	2.2meg			
R4	3.3meg				R12	68K			
R5	47K				R13	12K			
R6	3.9meg				R14	2700Ω			
R7	330Ω				R15	10Ω			
R8	100K				R16	20Ω Cold			Pt. #6K543800
R9	10meg				R17	220Ω			
R10	3.3meg				R18	47Ω 2W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	24C535458 ①					①Part of M2
L2	RF	24C535458 ①					
L3	Osc.	24C535456 ①					
L4	Input IF	24B543286	BC-350	12-H1	RTC-8638	T604	
L5	Output IF	24K543287	BC-354	12-H6	RTC-8640	T606	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L6	1.2A	.2Ω	1MH	25B64889A01					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	10	1	25K544508					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	30Ω Tap @ 3-4Ω	25K543444A ①					① Alternate Part #25K543444

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6"x 9"	PM	3-4Ω	50C541101	69A3	

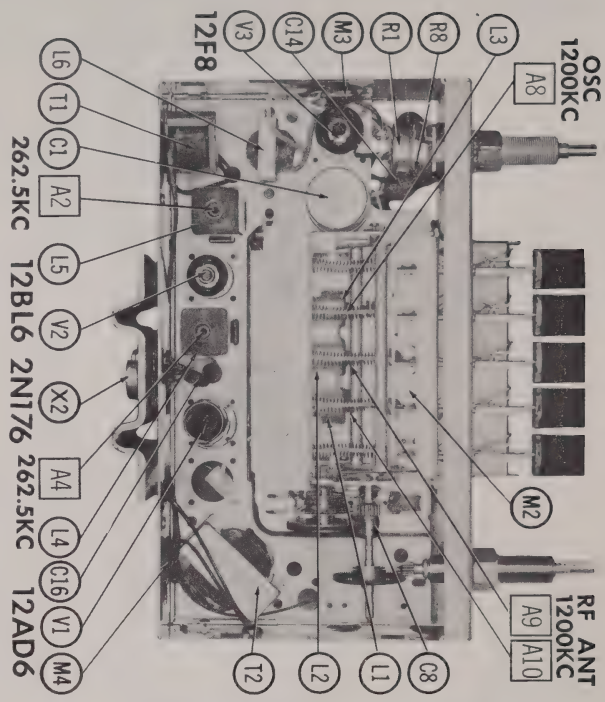
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	9A 32V	65K16248	1V541705	307009 (SFE 9A 32V)	155009	SFE 9	HRH

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Tuner	77D40301A01	(AT-331) Complete
M3	Spark Plate	64K530177	
M4	Spark Plate	64K561877	

CHASSIS—TOP VIEW



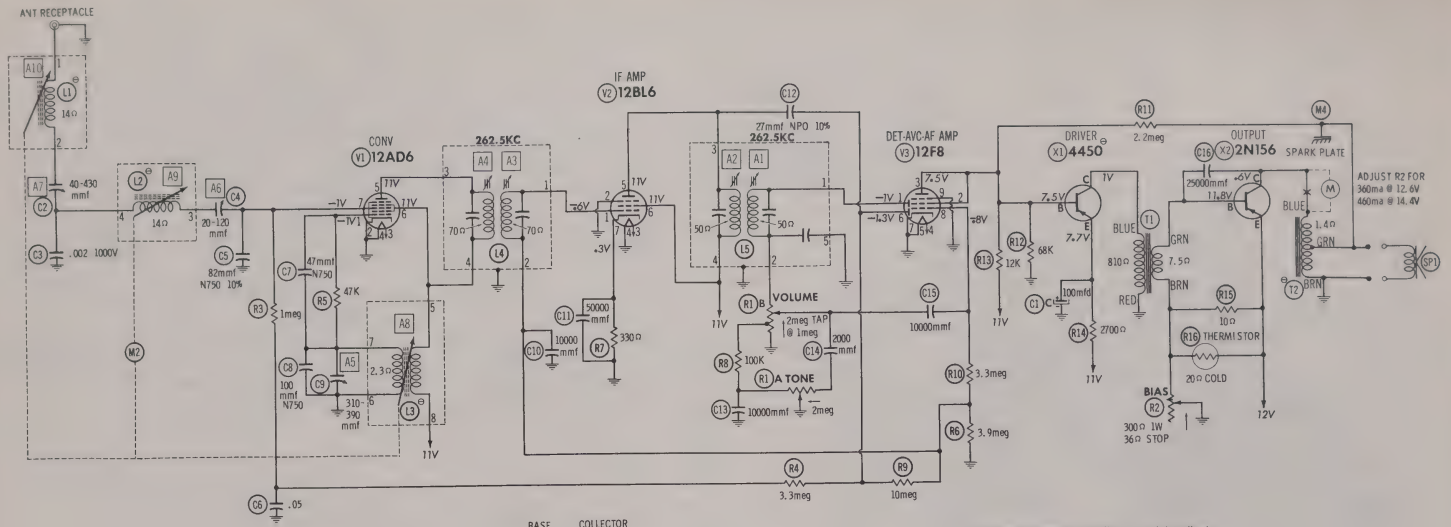
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	1V543492	
Dial Scale	34B541013	
Knob	36B543382	Tuning, Volume
Knob	36B543398	Tone
Knob	36K543399	Dummy
Pushbutton	1V543489	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661



TERM BOARD VIEW
TUNER (M2)

TERM VIEW L4
TERM VIEW L5
TRANSISTOR TERM GUIDE X1

TRANSISTOR TERM GUIDE X2

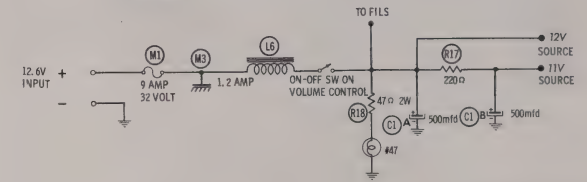
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AD6	47K	0Ω	5Ω	0Ω	315Ω	225Ω	18meg		
V2	12BL6	3.9meg	0Ω	5Ω	0Ω	275Ω	225Ω	330Ω		
V3	12F8	1.8meg	1000Ω	1000Ω	5Ω	0Ω	14meg	0Ω	7.2meg	0Ω

TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

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MOTOROLA MODEL 10AX

PHOTOFACT® Folder

**NUTONE MODELS
2401, 2402**

NUTONE MODELS
2401, 2402

MODEL 2401

INSIDE
REMOTE
CONTROL

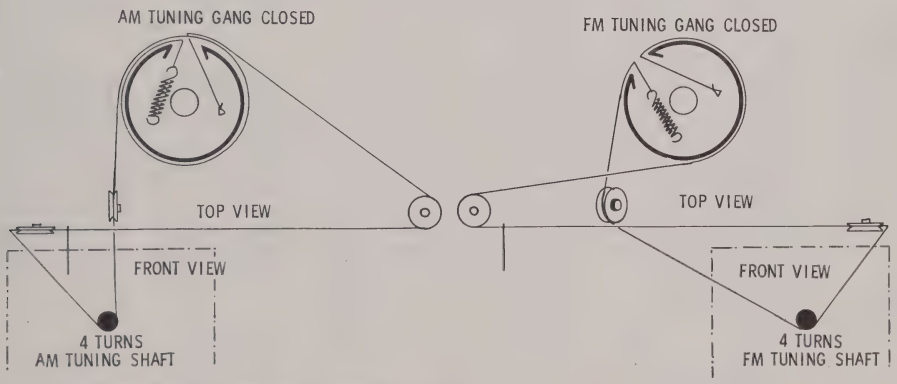
MODEL 2416

MODEL 2402

NUTONE MODELS
2401, 2402

TRADE NAME	Nutone Models 2401, 2402		
MANUFACTURER	Nutone, Inc., Madison and Red Bank Roads, Cincinnati 27, Ohio		
TYPE SET	AC Operated 10 Tube FM-AM Tuner, 10 Tube Stereo Amplifier and Intercom Unit, and Remote Control Panel		
POWER SUPPLY	110 — 125 Volts AC, 60 Cycles	RATING	41 Watts, .41 Amp. @117 Volts AC(Tuner)(on115V Tap) 88 Watts, .78 Amp.@117Volts AC (Amp)(on115V Tap)
TUNING RANGE—BROADCAST	540 — 1600KC	FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KK293

SET 530 FOLDER 10

TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6AB4
V2	FM Converter	6AB4
V3	FM IF Amplifier	6AU6
V4	FM Limiter	6AU6
V5	Ratio Detector	6AL5

ITEM No.	USE	TYPE
V6	AF Amplifier	6AV6
V7	AM Converter	6BE6
V8	AM IF Amplifier	6AU6 (6BA6) *
V9	Det. -AVC-AF Amp.	6AV6
V10	Rectifier	EZ80 (6V4) *

* Alternate

ELECTROLYTIC CAPACITORS

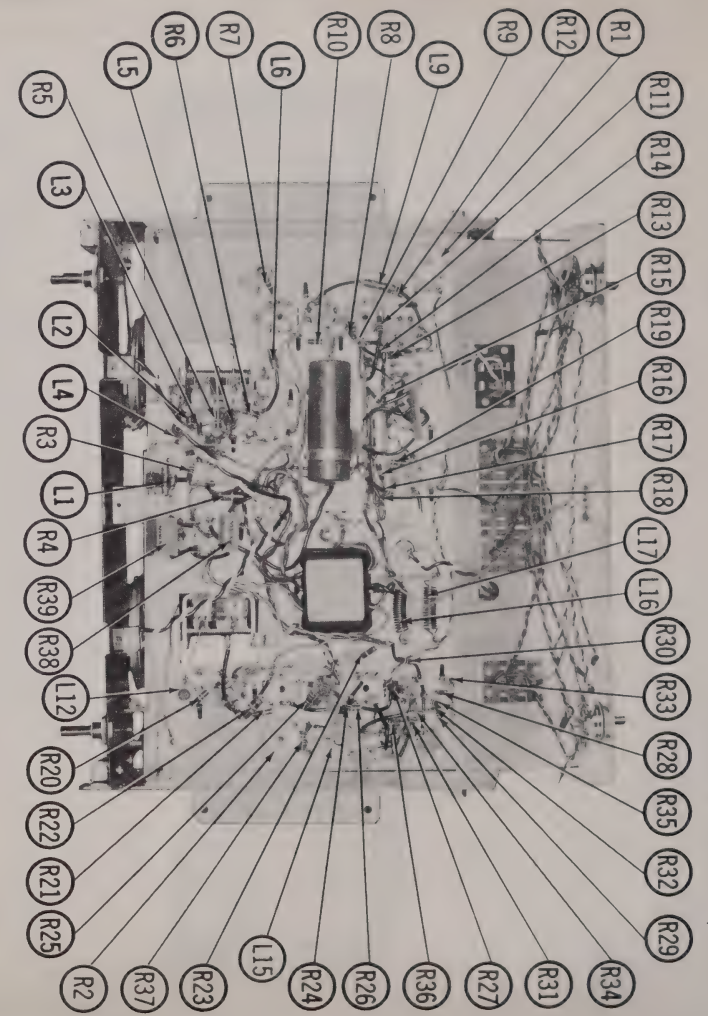
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA NUTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	50	300	B35010	PRS1680	BR5035	TC79	TD-50-450	TVA-1713	
C2A	▲40	300	B35009	AFH2-54		FP217.87		TVL-1663	
B	▲40	300						TVA-1611	
C3	10	50	A35011	SRE50V10	NLW10-50	TT50X10	ML10-50	TE-1304	
C4	20	6	B35012	XPP-6020	NLW20-6	TT15X20	MLV25-6	TE-1090	
C5	20	6	B35012	XPP-6020	NLW20-6	TT15X20	MLV25-6	TE-1090	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68
C7	1000		BPD-01	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	5							
C9	1000		EF-001	MFT-1000		CCF-102	CT280A	
C10	1000		EF-001	MFT-1000		CCF-102	CT280A	
C11	20 NPO 10%		NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C12	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C13	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C14	9 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C15	4.7 N750	Note 1		DTN-5	C10V5U	CCTN-050	CN7-547	10TCU-V50
C16	4.7 N220 10%					*		10TCR-V47
C17	1-6			829-6		CU-3	CT552	
C18	15 N750 10%		N750-DI 15	DTN-15	C10Q15U	CCTN-150	CN7-415	10TCU-Q15
C19	4.7 N750 10%			DTN-5	C10V5U	CCTN-050	CN7-547	10TCU-V50
C20	4.7 N220 10%					*		10TCR-V47
C21	150 N750							
C22	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C23	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	3000 10%		DI-3000		PM6D3	CCD-302	JL-302	10TS-D30
C25	47 N1500 10%			TCL-47		*		
C26	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C28	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C29	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C30	330		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C31	.047 50V		P288N-047	DD-503	CUB2S47	1DP-2-473	GEM-4147	2TM-S47
C32	12 N1500 10%					*		
C33	47 N1500 10%			TCL-47		*		
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	30 N750 10%		N750-DI 33	TCN-30	C10Q3U	CCTN-330	CN7-433	10TCU-Q33
C39	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C40	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-4147	4TM-S50
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68
C43	.0047 200V 5%		V84C2D47-5%			CM-20B-472J	MCJ464	5BF-D47
C44	.0047 200V 5%		V84C2D47-5%			CM-20B-472J	MCJ464	5BF-D47
C45	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

TUNER CHASSIS—BOTTOM VIEW



TUNER PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C46	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NUTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	250K	½	B34009	AB-51	A47-250K-Z	BI3-130	U44	FM Level
B	Shaft			AK-1	FKS-1/4	TM4	Not Req.	
R2A	250K	½	B34009	AB-51	A47-250K-Z	BI3-130	U44	AM Level
B	Shaft			AK-1	FKS-1/4	TM4	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	47K				R22	10K 1W			
R4	8200Ω 1W				R23	1000Ω			
R5	10K				R24	22K			
R6	100K				R25	68Ω			
R7	5600Ω				R26	1meg			
R8	27K				R27	1meg			
R9	1000Ω				R28	1meg			
R10	68Ω				R29	470K			
R11	470K				R30	100K			
R12	100K				R31	270K			
R13	100K				R32	1800Ω			
R14	47K				R33	1500Ω			
R15	100K				R34	560K			
R16	220K				R35	160K			
R17	100K				R36	39K			
R18	1.5meg				R37	33K			
R19	1800Ω				R38	500Ω 5W	PW5-500Ω	5W-SQ-500	
R20	22K				R39	500Ω 5W	PW5-500Ω	5W-SQ-500	
R21	1meg								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	NUTONE PART No.	REPLACEMENT DATA
K1	Ratio Detector Balance	(3) 300mmf, 1000mmf, 68Ω, 1000Ω, 1500Ω, (2) 6800Ω, 68K	A37007	Aerovox PA-694 Centralab PC-342
K2	AM Diode RF Filter	100mmf, 100mmf, 47K	A37000	Aerovox PA-98 Centralab PC-50 Cornell-Dubilier 111TM1 Sprague D-1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		NUTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Trans.	A30022				① Wound on 47Ω Resistor.
L2	RF Choke	B30021 ①				
L3	RF Choke (1.5uh)	A30020	BC-562	4604	RTC-8516	
L4	FM RF	B30016				
L5	FM Osc.	B30017				
L6	RF Choke (1.7uh)	A30019	BC-562	4604	RTC-8516	
L7	1st FM IF	C30506	FM-254	1463	RTC-8599	

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		NUTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L8	2nd FM IF	C30507	FM-254	1463	RTC-8599	
L9	Fil. Choke (3.6uh)	B30010	BC-564	4608	RTC-8518	
L10	Ratio Detector	C30508	FM-255	1465	RTC-8600	
L11	AM Ant.	A30509	BC-386	70-A	RTC-8731	
L12	AM Osc.	B30012	BC-393	70-OSC	RTC-8647	
L13	1st AM IF	C30505	BC-352	12-C1	RTC-8632	
L14	2nd AM IF	C30505	BC-353	12-C2	RTC-8633	
L15	10KC Filter	B30018				
L16	Line Choke(1.4uh)	B30011	BC-562	4604	RTC-8516	
L17	Line Choke(1.4uh)	B30011	BC-562	4604	RTC-8516	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	NUTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	125V Ⓐ .38A Tap Ⓐ 117V Ⓐ .43A	460V CT Ⓐ .050A	6.3V CT Ⓐ .9A	B30510 (32B73)					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 2.1A								

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			NUTONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1½A 250V	A31060		31201.5 (3AG 1½A 250V)	342001	AGC 1½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	NUTONE PART No.	NOTES
M2	Tuning Cap.	C35015	FM
M3	Tuning Cap.	C35014	AM, 2 Gang (Ant. 7—131mmf, Osc. 8—108mmf)
M4	Switch	A34510	"A" Channel Selector (Rotary Wafer Type)
M5	Switch	A34510	"B" Channel Selector (Rotary Wafer Type)
M6	Switch	A34509	Power Off-On (SPDT, Slide Type)
M7	Switch	A34509	AC Input (115-125VAC) (SPDT Slide Type)

CABINETS & CABINET PARTS

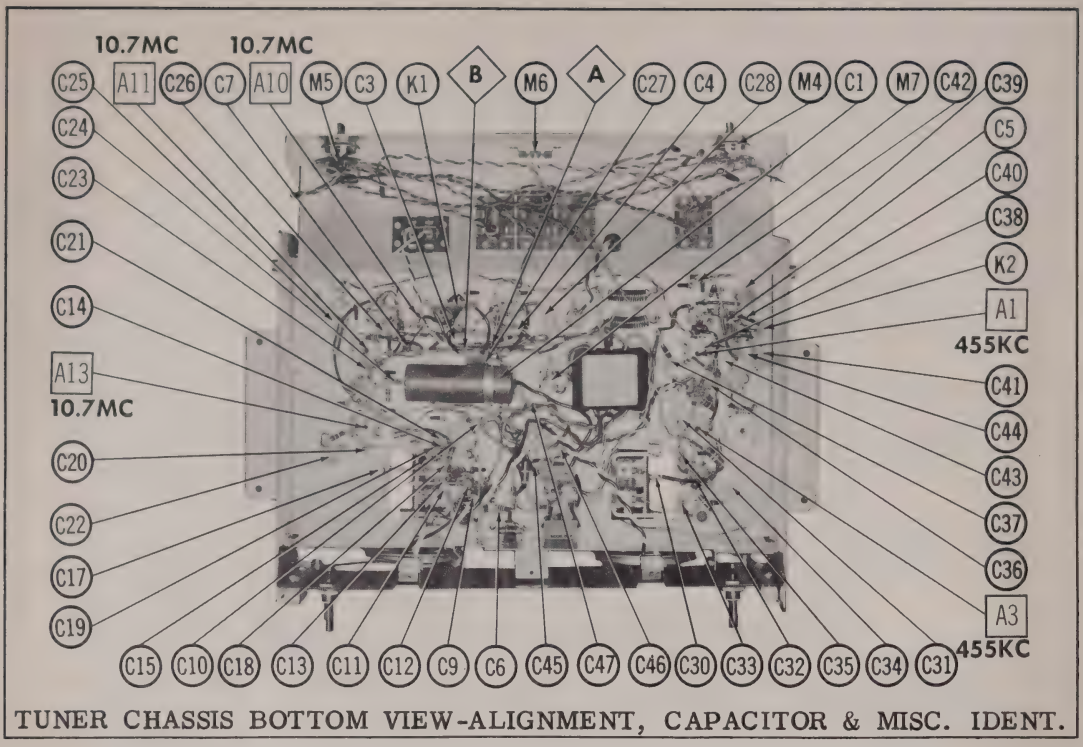
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Glass	A31081	Dial Panel
Knob	A8246	Large, Tuner, Amplifier
Knob	A8352	Small
Knob	A8265	Small, Remote Units
Knob	A8245	Lever Controls, Amplifier, Remote Units

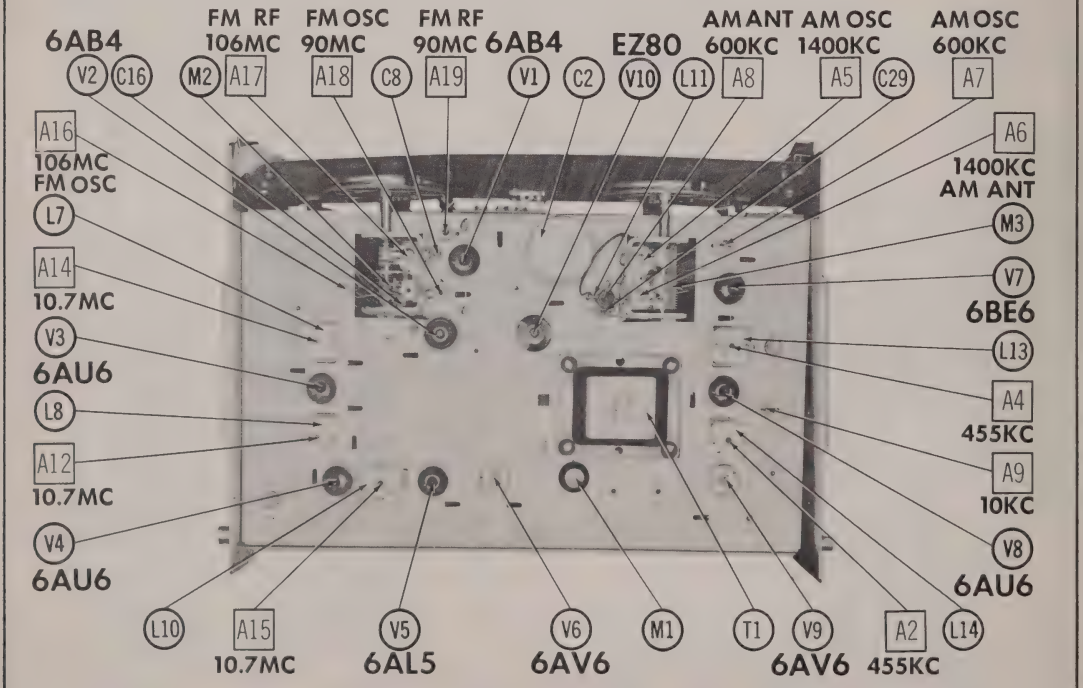
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

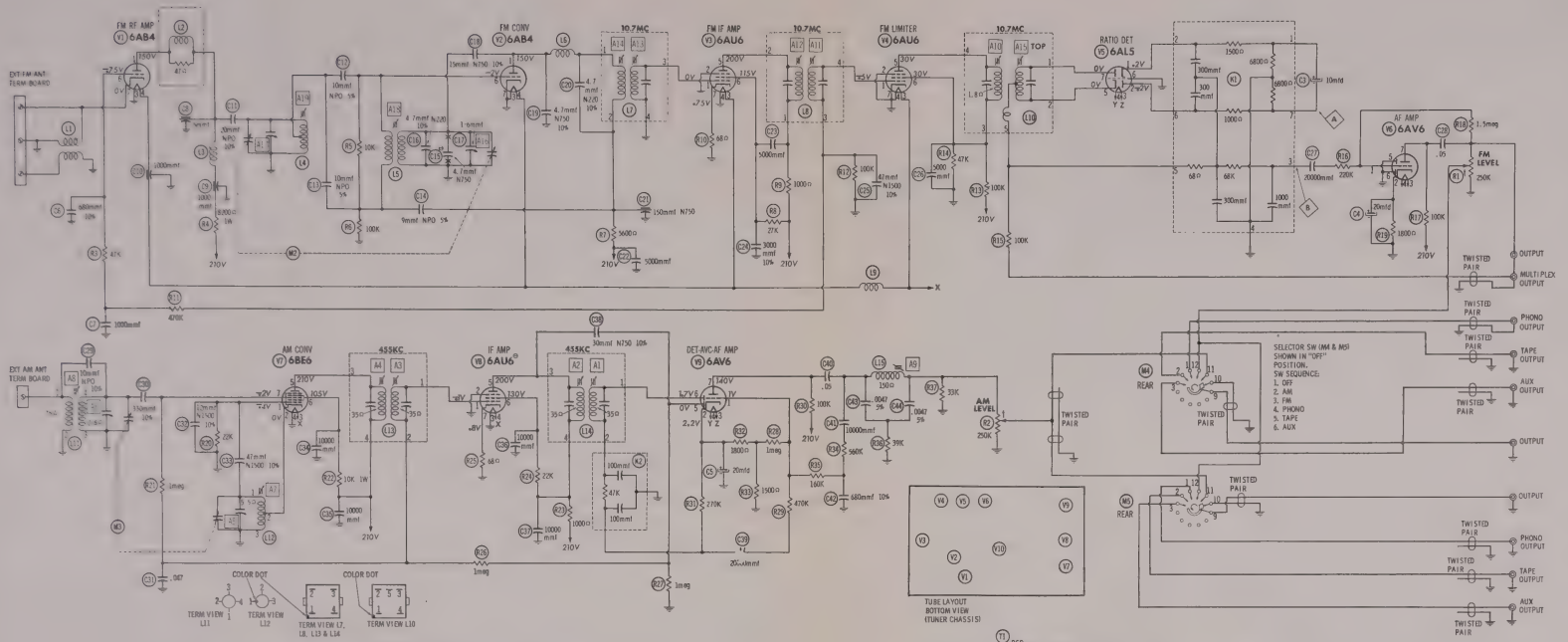
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



TUNER CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



TUNER CHASSIS-TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AB4	†9200Ω	TP	0Ω	.1Ω	TP	620Ω	0Ω		
V2	6AB4	†5600Ω	TP	0Ω	.1Ω	TP	100K	0Ω		
V3	6AU6	1Ω	0Ω	1Ω	0Ω	†20000Ω	†28K	68Ω		
V4	6AU6	100K	0Ω	.1Ω	0Ω	†68K	†68K	0Ω		
V5	6AL5	8300Ω	7800Ω	.1Ω	.1Ω	INF	0Ω	INF		
V6	6AV6	1.7meg	1800Ω	.1Ω	.1Ω	0Ω	0Ω	†100K		
V7	6BE6	33K	3Ω	.1Ω	0Ω	†10000Ω	†11K	3meg		
V8	6AU6	2meg	0Ω	0Ω	.1Ω	†20000Ω	†26K	68Ω		
V9	6AV6	1meg	3200Ω	.1Ω	.1Ω	1meg	320K	†100K		
V10	EZ80	125Ω	NC	¶	0Ω	.1Ω	TP	130Ω	TP	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V10. NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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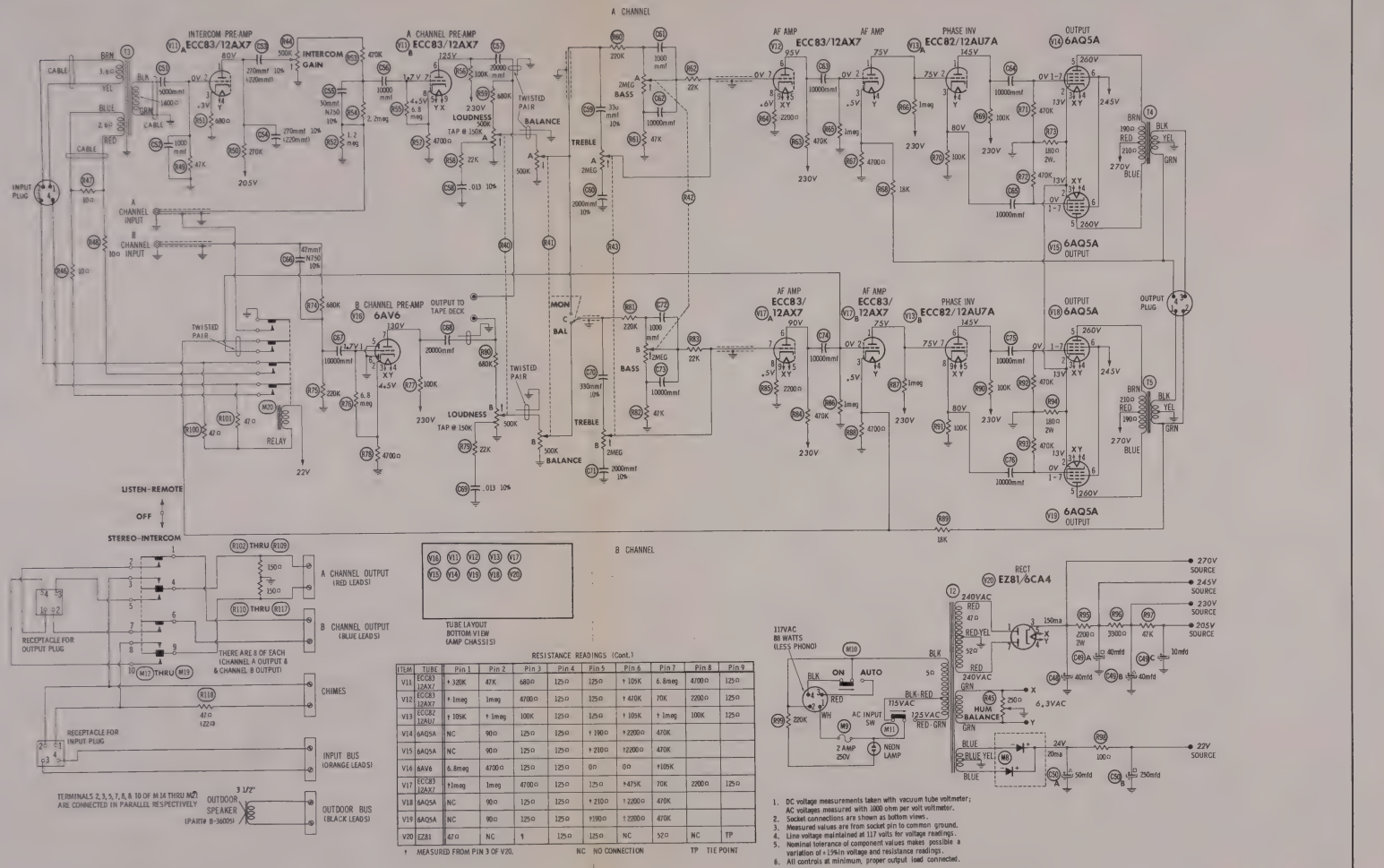
NUTONE MODELS 2401, 2402

TUNER SCHEMATIC



RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V11	ECC83 12AX7	†320K	47K	680Ω	125Ω	125Ω	†105K	6.8meg	4700Ω	125Ω
V12	ECC83 12AX7	†1meg	1meg	4700Ω	125Ω	125Ω	†470K	70K	2200Ω	125Ω
V13	ECC82 12AU7	†105K	†1meg	100K	125Ω	125Ω	†105K	†1meg	100K	125Ω
V14	6AQ5A	NC	90Ω	125Ω	125Ω	†190Ω	†2200Ω	470K		
V15	6AQ5A	NC	90Ω	125Ω	125Ω	†210Ω	†2200Ω	470K		
V16	6AV6	6.8meg	4700Ω	125Ω	125Ω	0Ω	0Ω	†105K		
V17	ECC83 12AX7	†1meg	1meg	4700Ω	125Ω	125Ω	†475K	70K	2200Ω	125Ω
V18	6AQ5A	NC	90Ω	125Ω	125Ω	†210Ω	†2200Ω	470K		
V19	6AQ5A	NC	90Ω	125Ω	125Ω	†190Ω	†2200Ω	470K		
V20	EZ81	47Ω	NC	¶	125Ω	125Ω	NC	52Ω	NC	TP

† MEASURED FROM PIN 3 OF V20. NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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NUTONE MODELS 2401, 2402

AMPLIFIER SCHEMATIC

SET 530 FOLDER 10 PAGE 7 PAGE 8

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1 Thru A4, A8 Thru A15, A19	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A5, A6, A16, A17	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A7, A9	GENERAL CEMENT #8721, 8722 WALSCO #2519
A18	GENERAL CEMENT #8282, 8606, 8606-L, 9091 WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	AC probe across Channel "A" Output jack.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	High side thru 50mmf to AM antenna terminal. Low side to chassis.	1400KC	1400KC	"	A5, A6	"
3.	"	600KC	600KC	"	A7, A8	Adjust for maximum deflection. Repeat Steps 2 and 3.
4.	"	600KC (10KC Mod.)	"	"	A9	Adjust for MINIMUM deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .001mfd to pin 6 (grid) of FM Converter. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .001mfd to pin 6 (grid) of FM Converter. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3.
6.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	106MC (Unmod.)	(FM) 106MC	DC probe to point Ⓐ. Common to chassis.	A16, A17	Adjust for maximum deflection.
8.	"	90MC	90MC	"	A18, A19	Adjust for maximum output. Repeat Steps 7 and 8.

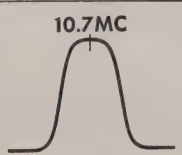


FIG. 1

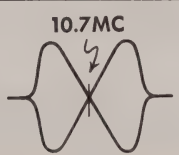
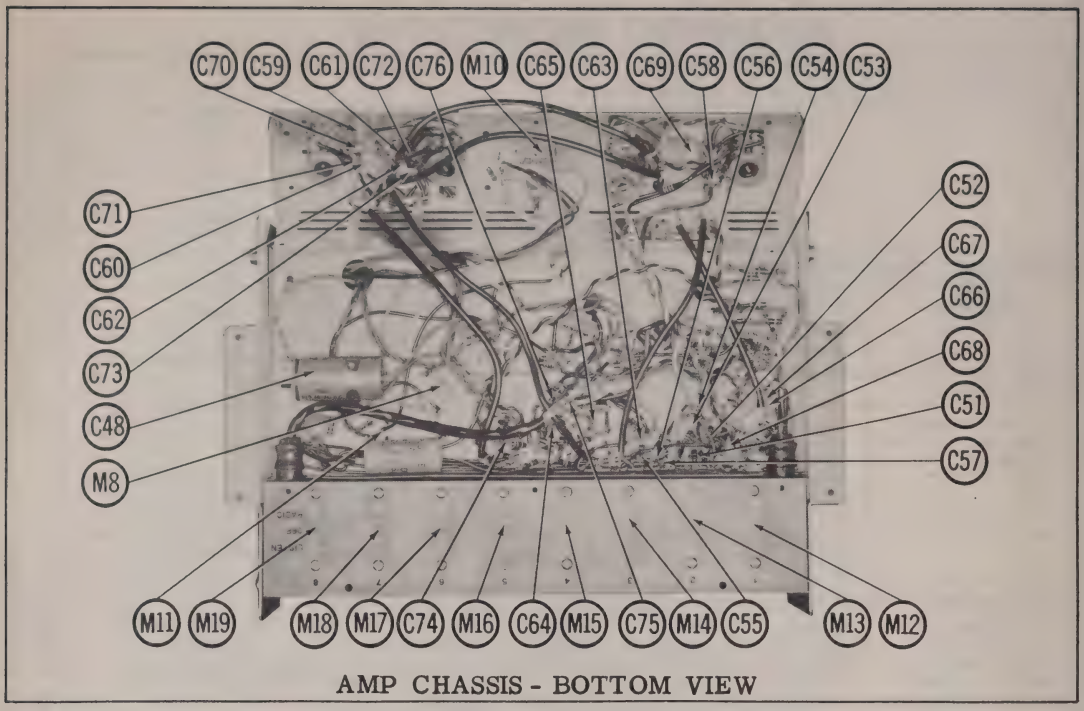
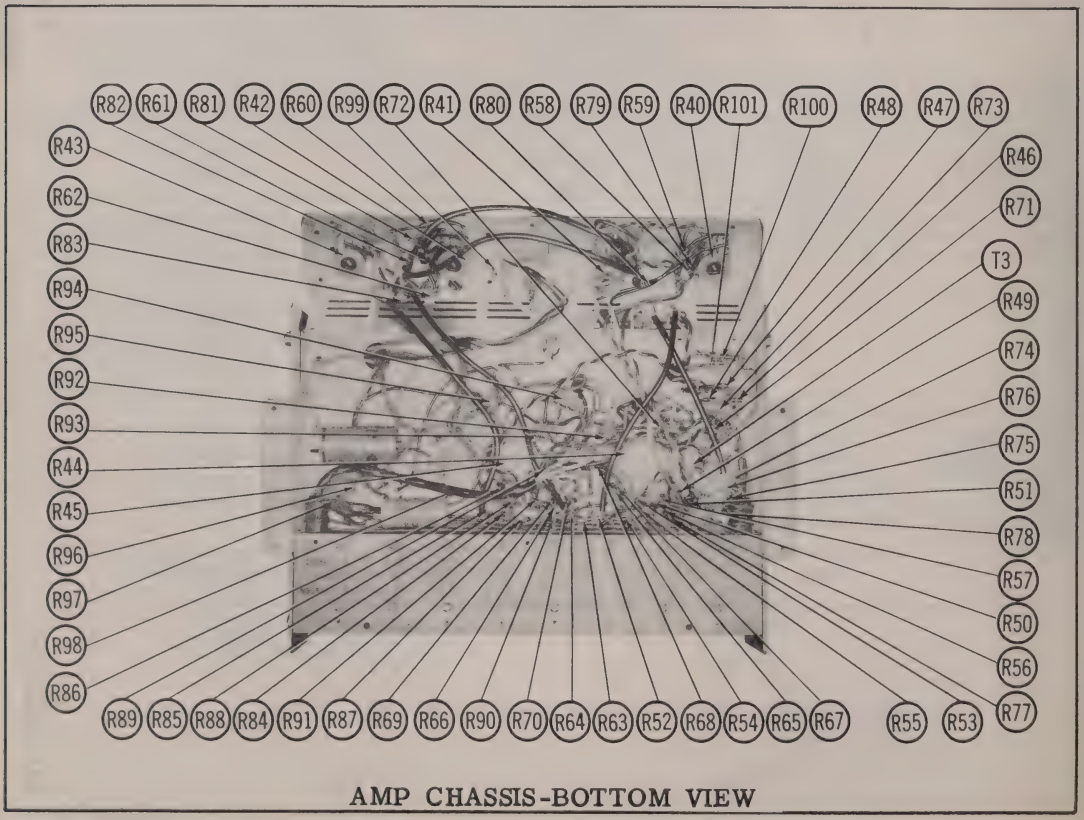


FIG. 2



AMP CHASSIS - BOTTOM VIEW



AMP CHASSIS-BOTTOM VIEW

AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V11	Intercom Preamp. - Channel A Preamp.	ECC83/12AX7
V12	Channel A AF Amp.	ECC83/12AX7
V13	Channel A Phase Inv. - Channel B Phase Inv.	ECC82/12AU7
V14	Channel A Output	6AQ5A
V15	Channel A Output	6AQ5A
V16	Channel B Preamp.	6AV6
V17	Channel B AF Amp.	ECC83/12AX7
V18	Channel B Output	6AQ5A
V19	Channel B Output	6AQ5A
V20	Rectifier	EZ81 (6CA4) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA NUTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C48	40	350	B35006	PRS1670	BR4035	TC78	TD-40-350	TVA-1611	
C49A	■40	350	B35007			FP230.5	TMT-3432	TVL-2724	
B	▲40	350				TC78		TVA-1611	
C	10	350							
C50A	▲50	50	B35008			FP115		TVL-1324	
B	■250	50				TC50025		TVA-1308	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

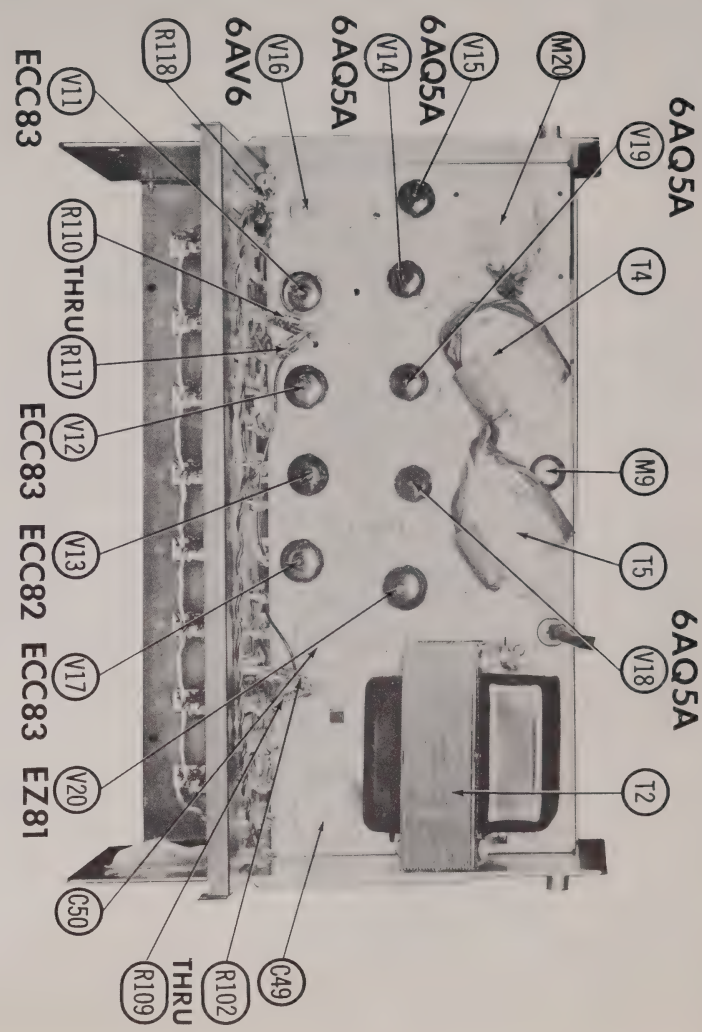
ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C51	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C52	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C53	270 10%	(220) †	DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C54	270 10%	(220) †	DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C55	30 N750 10%		N750-DI 33	TCN-30	C10Q33U	CCTN-330	CN7-433	10TCU-T33
C56	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C57	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C58	.013 200V 10%				DPMS6S12			2WF-S12
C59	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C60	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C61	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C62	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C63	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C64	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C65	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C66	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C67	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C68	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C69	.013 200V 10%				DPMS6S12			2WF-S12
C70	330 10%		DI-331	DD-331	L10T33	CCD-331	GP333	10TS-T33
C71	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C72	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C73	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C74	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C75	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C76	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

† Alternate Value

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA NUTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R40A	500K *		B34006	BT-66			FA55T15	Loudness, Channel A
B	500K *			STR-66			RU55T15	Loudness, Channel B
C	Shaft			Not Req.			CS3500	
R41A	500K		B34005	B-60				Balance, Channel A
B	500K			SR-613				Balance, Channel B
C	Switch			KR-3				Mon-Bal.

AMP CHASSIS—TOP VIEW



AMP PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NUTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R42A	2meg	½	B34004	B-76	AD47-2meg-S		FB26A	Bass, Channel A
B	2meg			SR-76	Not Req.		RU26A	Bass, Channel B
C	Shaft			Not Req.	FS-3		CS3500	
R43A	2meg	½	B34004	B-76	AD47-2meg-S		FB26A	Treble, Channel A
B	2meg			SR-76	Not Req.		RU26A	Treble, Channel B
C	Shaft			Not Req.	FS-3		CS3500	
R44A	500K	½	B34008	TT-60	B47-500K-Z	B13-133	U48	Intercom Gain
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R45A	250Ω	½	B34007	TT-2		B11-201	RU22L	Hum Balance
B	Shaft			Not Req.		TM4	SL3500	
C	Bushing			Not Req.		Not Req.	SL-38	

* Tap ⓐ 150K.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R46	10Ω			
R47	10Ω			
R48	10Ω			
R49	47K			
R50	270K			
R51	680Ω			
R52	1.2meg			
R53	470K			
R54	2.2meg			
R55	6.8meg			
R56	100K			
R57	4700Ω			
R58	22K			
R59	680K			
R60	220K			
R61	47K			
R62	22K			
R63	470K			
R64	2200Ω			
R65	1meg			
R66	1meg			
R67	4700Ω			
R68	18K			
R69	100K			
R70	100K			
R71	470K			
R72	470K			
R73	180Ω 2W			
R74	680K			
R75	220K			
R76	6.8meg			
R77	100K			
R78	4700Ω			
R79	22K			
R80	680K			
R81	220K			
R82	47K			
R83	22K			
R84	470K			
R85	2200Ω			
R86	1meg			
R87	1meg			
R88	4700Ω			
R89	18K			
R90	100K			
R91	100K			
R92	470K			
R93	470K			
R94	180Ω 2W			
R95	2200Ω 2W			
R96	3300Ω			
R97	47K			
R98	100Ω			
R99	220K			

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R100	47Ω			
R101	47Ω			
R102	150Ω			
R103	150Ω			
R104	150Ω			
R105	150Ω			
R106	150Ω			
R107	150Ω			
R108	150Ω			
R109	150Ω			
R110	150Ω			
R111	150Ω			
R112	150Ω			
R113	150Ω			
R114	150Ω			
R115	150Ω			
R116	150Ω			
R117	150Ω			
R118	47Ω			(22Ω) *

* Alternate Value.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	NUTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	125V ⓐ .78A Tap 117V ⓐ .85A	500V CT ⓐ .150A DC	6.3V ⓐ 4.2A	B30502 (32B76)					
	SEC. 3	SEC. 4	SEC. 5						
	40V CT ⓐ .020A								

TRANSFORMER (INPUT)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.1	SEC.	NUTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	32	1	B30504					
	PRI. 2							
	46	1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	NUTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	7500Ω CT	6-8Ω CT	B30503 (32B69)					
T5	7500Ω CT	6-8Ω CT	B30503 (32B69)					

AMP PARTS LIST AND DESCRIPTIONS (Continued)

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	NUTONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M8	.020A	A36501			S-500	Dual Selenium, Common Cathode

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			NUTONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M9	3AG	2A 250V	A31032		312002 (3AG 2A 250V)	342001	AGC 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	NUTONE PART No.	NOTES
M10	Switch	A34507	On-Auto (SPDT Slide Type)
M11	Switch	A34509	AC Input (115-125VAC) (SPDT Slide Type)
M12	Switch	B34508	Listen-Remote-Off-Radio (4-Pole3-Position Wafer)
M13	Switch	B34508	Listen-Remote-Off-Radio(4-Pole 3-Position Wafer)
M14	Switch	B34508	Listen-Remote-Off-Radio)4-pole 3-Position Wafer)
M15	Switch	B34508	Listen-Remote-Off-Radio)4-Pole 3-Position Wafer)
M16	Switch	B34508	Listen-Remote-Off-Radio (4-Pole 3-Position Wafer)
M17	Switch	B34508	Listen-Remote-Off-Radio (4-Pole 3-Position Wafer)
M18	Switch	B34508	Listen-Remote-Off-Radio (4-Pole 3-Position Wafer)
M19	Switch	B34508	Listen-Remote-Off-Radio (4-Pole 3-Position Wafer)
M20	Relay	B31030	4-Pole 1-Position Relay

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

REMOTE PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NUTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R119A	50Ω	2(WW)	A34003	WN-500	A43-50	WPK50	R50L	Volume, Channel A
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R120A	50Ω	2(WW)	A34003	WN-500	A43-50	WPK50	R50L	Volume, Channel B
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

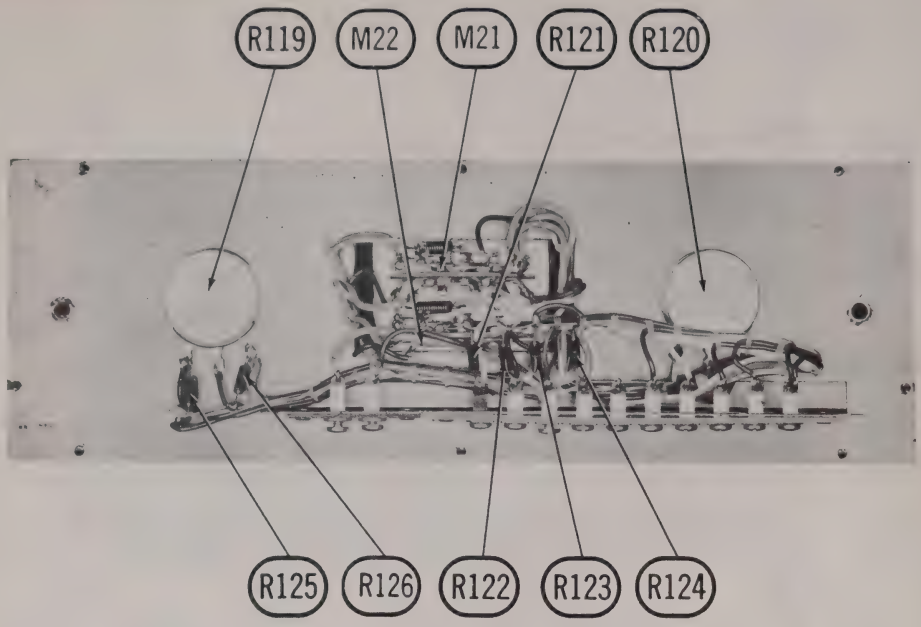
ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R121	150Ω				R124	150Ω			
R122	150Ω				R125	150Ω			
R123	150Ω				R126	150Ω			

SPEAKER

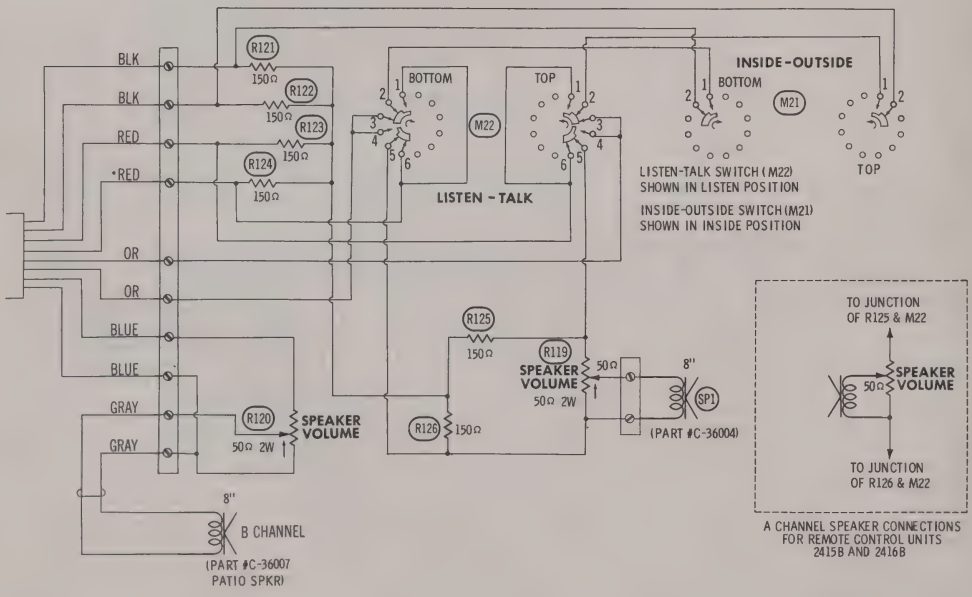
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	NUTONE PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	C-36004	8A4PA	* Patio Outside
	8"	PM		C-36007 *		
	3½"	PM		B-36005 ‡		‡ Door Remote

MISCELLANEOUS

ITEM No.	PART NAME	NUTONE PART No.	NOTES
M21	Switch	A34505	Listen-Talk (4-Pole ST, Spring Return)
M22	Switch	A34506	Inside-Outside (2-Pole ST, Spring Return)



REMOTE CONTROL UNIT



REMOTE SCHEMATIC

PHOTOFACT® Folder with CIRCUITRACE®

**PACO MODELS
ST-45, ST-45W**

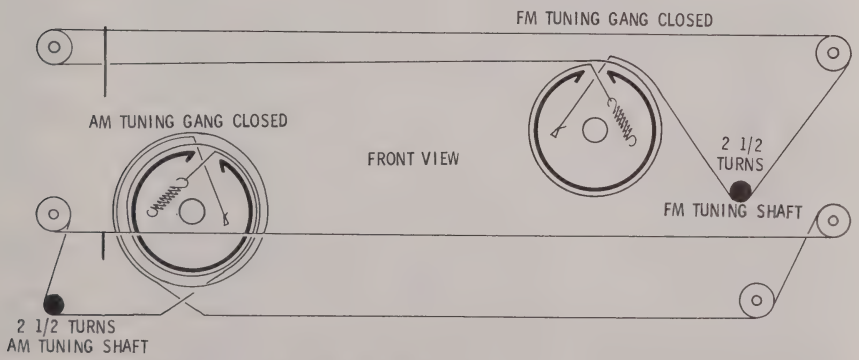
PACO MODELS
ST-45, ST-45W

MODEL ST-45W

PACO MODELS
ST-45, ST-45W

TRADE NAME	Paco Model ST-45, ST-45W
MANUFACTURER	Paco Electronics Co., Inc., 70-31 84th Street, Glendale 27, L. I., N. Y.
TYPE SET	AC Operated 13 Tube FM AM Tuner
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 72 Watts, .65 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	550 — 1600KC FREQ. MOD. 88 — 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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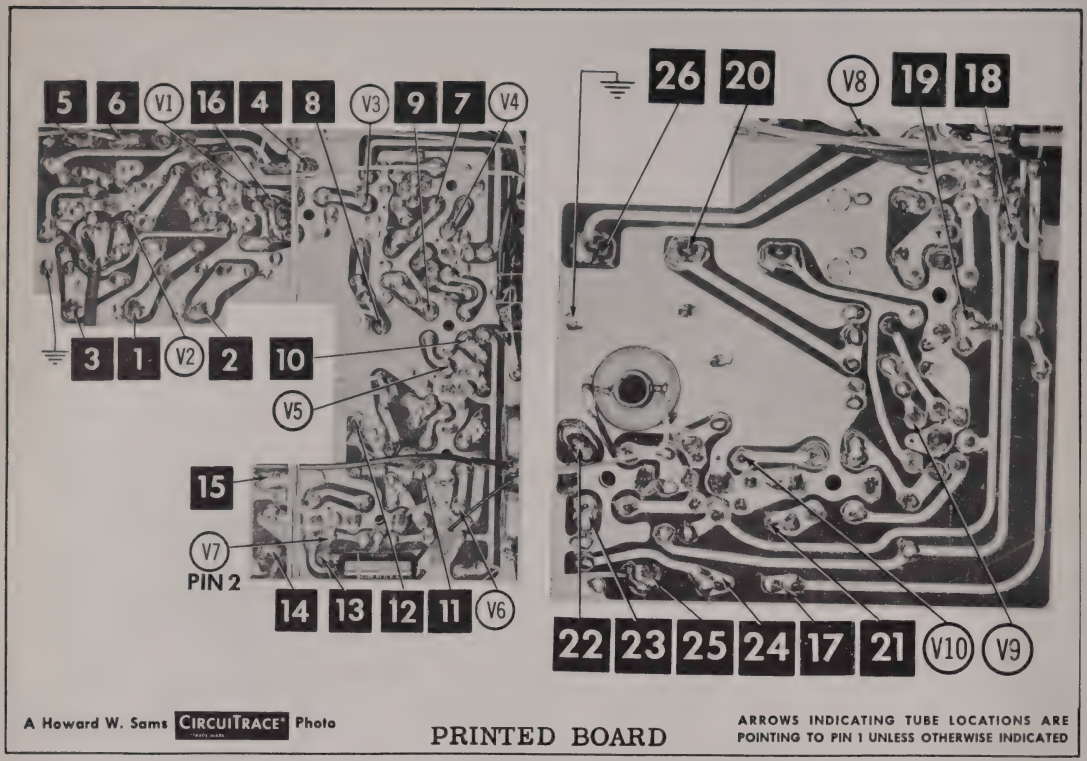
KL409

SET 530 FOLDER 11



A Howard W. Sams CIRCUITRACE® Photo

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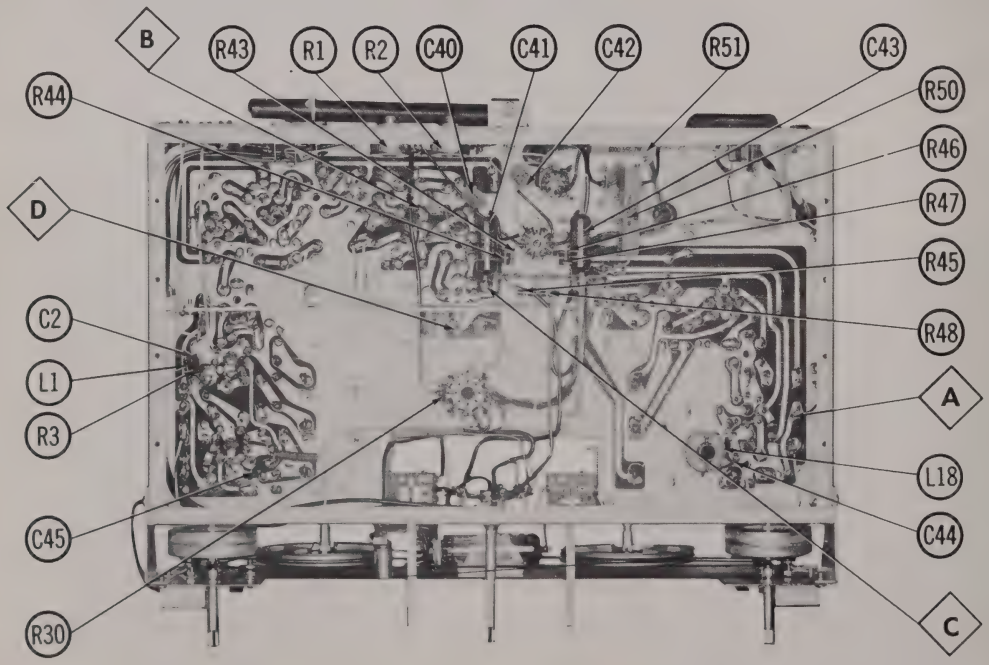
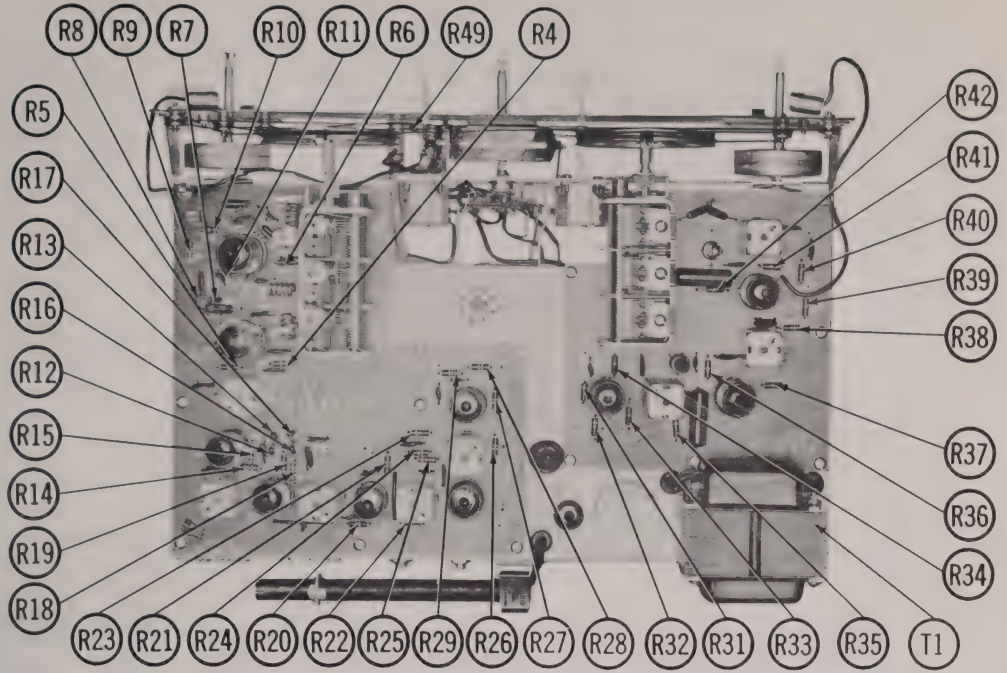
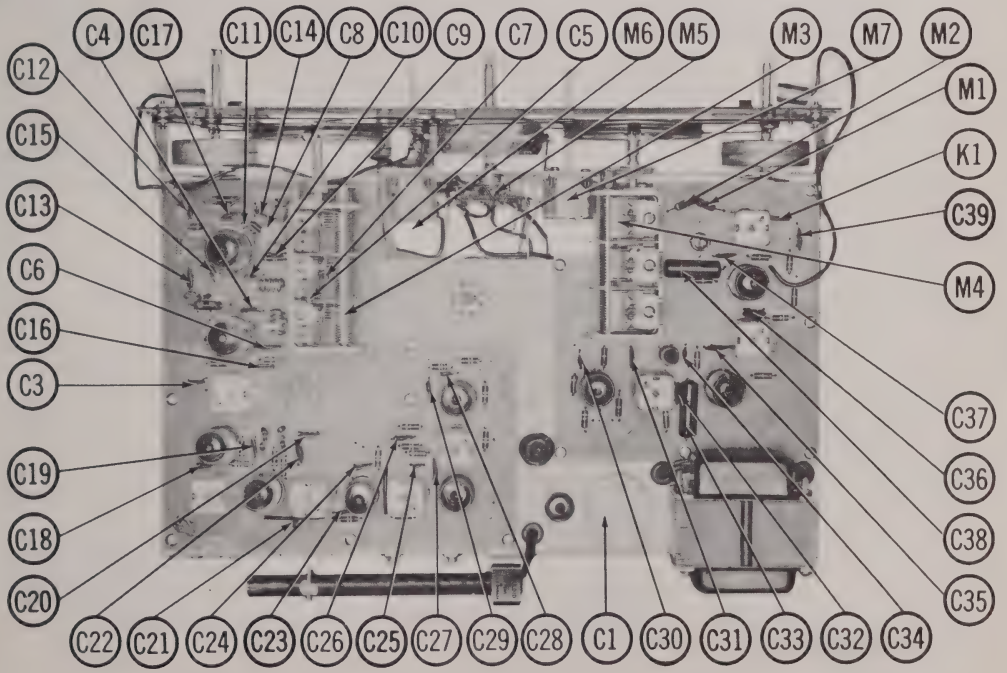
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



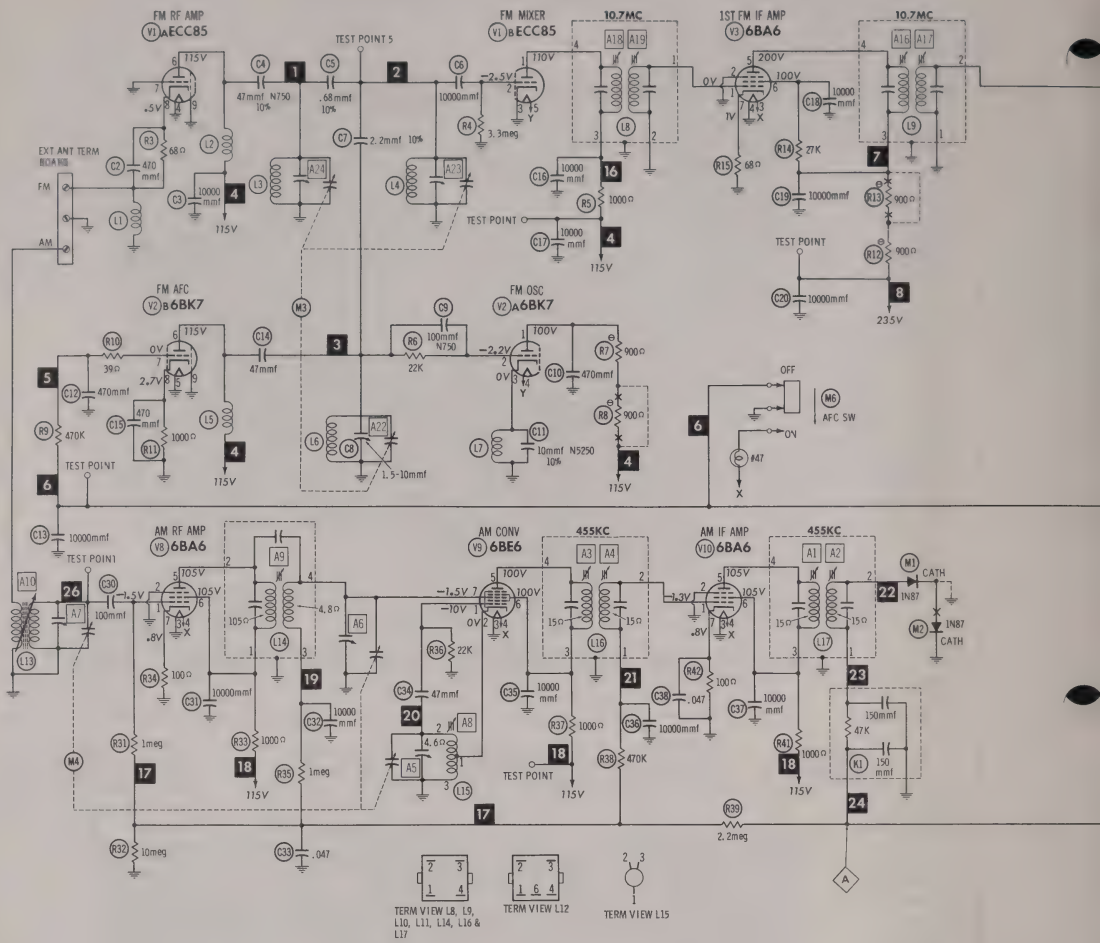
CHASSIS-BOTTOM VIEW



CHASSIS TOP VIEW-RESISTOR & TRANSFORMER IDENT.



CHASSIS TOP VIEW-CAPACITOR & MISC. IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85 6AQ8	†3500Ω	3.3meg	0Ω	0Ω	.1Ω	†2500Ω	0Ω	68Ω	0Ω
V2	6BK7	†4300Ω	22K	0Ω	.1Ω	0Ω	†2500Ω	1.7meg ▪470K	1000Ω	0Ω
V3	6BA6	.5Ω	0Ω	.1Ω	0Ω	†4300Ω	†30K	68Ω		
V4	6BA6	.5Ω	0Ω	.1Ω	0Ω	†4300Ω	†30K	68Ω		
V5	6AU6	100K	0Ω	.1Ω	0Ω	†10K	†10K	0Ω		
V6	6AU6	100K	0Ω	.1Ω	0Ω	†35K	†35K	0Ω		
V7	6AL5	0Ω	100K	.1Ω	0Ω	160K	0Ω	100K		
V8	6BA6	3.2meg	0Ω	0Ω	.1Ω	†3500Ω	†3500Ω	100Ω		
V9	6BE6	22K	.5Ω	0Ω	.1Ω	†3500Ω	†3500Ω	3.2meg		
V10	6BA6	2.7meg	0Ω	0Ω	.1Ω	†3500Ω	†3500Ω	100Ω		
V11	12AU7	†2500Ω	1.1meg	100K	0Ω	0Ω	†2500Ω	1.1meg	100K	.1Ω
V12	EM84 6FG6	1.1meg	NC	0Ω	0Ω	.1Ω	†0Ω	†470K	NC	†470K
V13	6X4	140Ω	NC	.1Ω	0Ω	NC	130Ω	¶		

ALL MEASUREMENTS MADE IN AM-FM STEREO POSITION.
† MEASURED FROM PIN 7 OF V13.
▲ MEASURED FROM CATHODE
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▪ MEASURED WITH AFC OFF.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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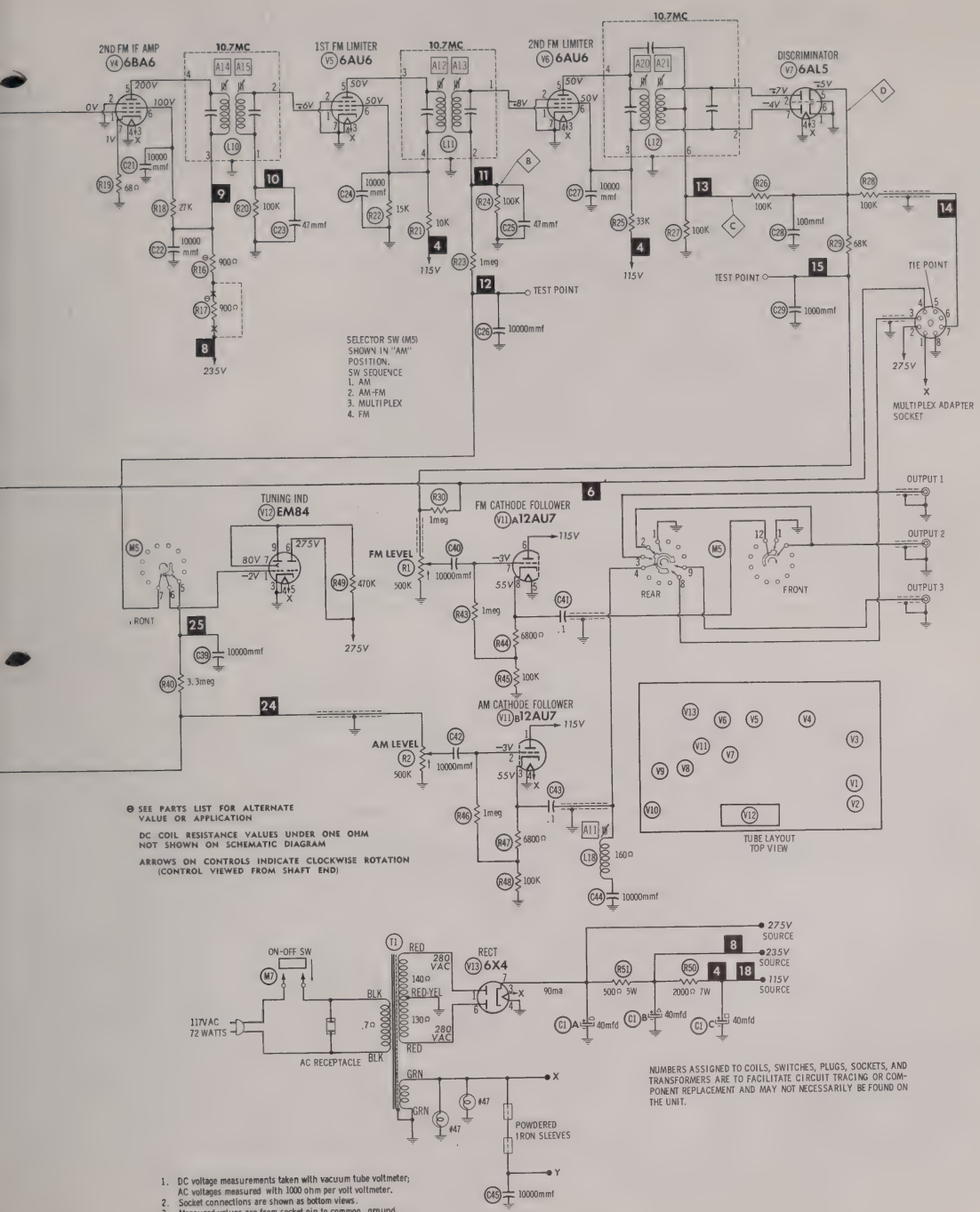


1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PACO MODELS ST-45, ST-45W

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4, A9, A12 thru A21	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A7, A22, A23, A24	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A8	GENERAL CEMENT #8274, 8275, 8728, 8729, 8989 WALSCO #2531, 2532
All	GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298 WALSCO #2516, 2518, 2519

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC Signal.	"	A6, A7	"
4.	"	600KC	600KC	"	A8, A9, A10	Adjust for maximum deflection. Repeat Steps 2, 3, 4.
5.	"	600KC (10KC Mod.)	"	AC probe to output jack 2. Common to chassis.	All	Adjust for MINIMUM deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓑ. Common to chassis.	A12, A13, A14, A15, A16, A17, A18, A19	Adjust for maximum deflection.
7.	"	"	"	DC probe thru 1meg to point Ⓒ. Common to chassis.	A20	"
8.	"	"	"	DC probe to point Ⓓ. Common to chassis.	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓑ. Low side to chassis.	A12, A13, A14, A15, A16, A17, A18, A19	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
7.	"	"	"	Vert. amp. thru 47K to point Ⓒ. Low side to chassis.	A20	"
8.	"	"	"	Vert. amp. to point Ⓓ. Low side to chassis.	A21	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A20 for maximum amplitude and straightness of crossover lines.

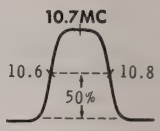


FIG. 1

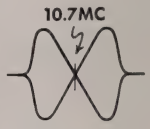


FIG. 2

FM RF ALIGNMENT – SELECTOR IN FM POSITION

AFC Switch "Off"

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	High side thru 270Ω to FM antenna terminal. Low side to chassis.	108MC (Unmod.)	(FM) 108MC	DC probe to point Ⓑ. Common to chassis.	A22	Adjust for maximum deflection.
10.	"	88MC	88MC	"	L6	Adjust by expanding or compressing coil turns for maximum deflection.
11.		106MC	106MC	"	A23, A24	Adjust for maximum deflection.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	FM RF Amp. -FM Mixer	ECC85/6AQ8
V2	FM Osc. -AFC	6BK7
V3	1st FM IF Amplifier	6BA6
V4	2nd FM IF Amplifier	6BA6
V5	1st FM Limiter	6AU6
V6	2nd FM Limiter	6AU6
V7	Discriminator	6AL5
V8	AM RF Amplifier	6BA6
V9	AM Converter	6BE6
V10	AM IF Amplifier	6BA6
V11	FM-AM Cath. Follower	12AU7
V12	Tuning Indicator	EM84/6FG6
V13	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PACO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▰40	300	P16-265	AFH3-39	C0194	FP217. 87 TC78	TMT-3295	TVLS-3639.14*	
B	▲40	300							
C	■40	300							

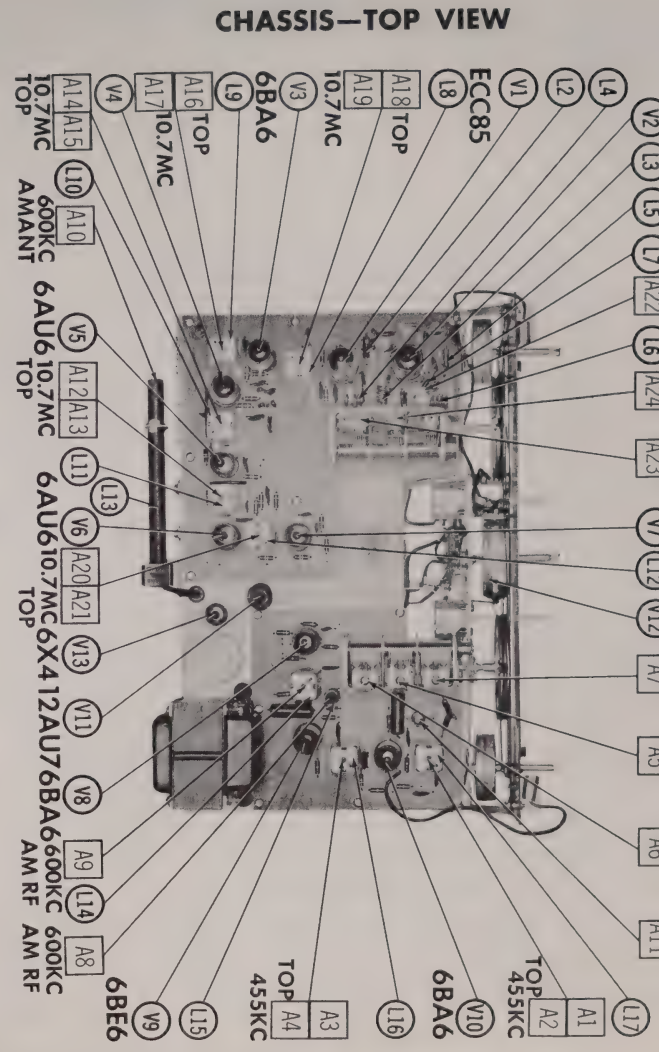
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C5	.68 10%		NPO-SI .68	TCZ-R68				
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C8	1.5-10	#P16-264		829-10				
C9	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C10	470		BPD-00047	DD-471		CCD-471	B-347	10TS-T47
C11	10 N5250 10%	#P16-268				*		
C12	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C15	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C29	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C34	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C44	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

CHASSIS—TOP VIEW



PACO MODELS
ST-45, ST-45W

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C45	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

♦ Paco Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PACO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	1/2	P17-182A	AB-60	A47-500K-Z	Q13-133	U48	FM Level
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R2A	500K	1/2	P17-182A	AB-60	A47-500K-Z	Q13-133	U48	AM Level
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R3	68Ω			
R4	3.3meg			
R5	1000Ω			
R6	22K			
R7	900Ω			Note 1
R8	900Ω			Note 1
R9	470K			
R10	39Ω			
R11	1000Ω			
R12	900Ω			Note 2
R13	900Ω			Note 2
R14	27K			
R15	68Ω			
R16	900Ω			Note 3
R17	900Ω			Note 3
R18	27K			
R19	68Ω			
R20	100K			
R21	10K			
R22	15K			
R23	1meg			
R24	100K			
R25	33K			
R26	100K			
R27	100K			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R28	100K			
R29	68K			
R30	1meg			
R31	1meg			
R32	10meg			
R33	1000Ω			
R34	100Ω			
R35	1meg			
R36	22K			
R37	1000Ω			
R38	470K			
R39	2.2meg			
R40	3.3meg			
R41	1000Ω			
R42	100Ω			
R43	1meg			
R44	6800Ω			
R45	100K			
R46	1meg			
R47	6800Ω			
R48	100K			
R49	470K			
R50	2000Ω 7W	PW10-2000	7W-SQ-2000	
R51	500Ω 5W	PW5-500	5W-SQ-500	

Note 1. When R8 is not used, R7 is 1800Ω.
Note 2. When R13 is not used, R12 is 1800Ω.
Note 3. When R17 is not used, R16 is 1800Ω.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PACO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke (1uh)	P18-195	BC-561	4602	RTC-8515	T855	
L2	RF Choke (3.3uh)	P18-196	BC-564	9330-12	RTC-8518		
L3	FM RF	P18-192					
L4	FM Mixer Grid	P18-192					
L5	RF Choke (3.3uh)	P18-196	BC-564	9330-12	RTC-8518		
L6	FM Osc.	P18-191					
L7	RF Choke (1uh)	P18-195	BC-561	4602	RTC-8515	T855	
L8	1st FM IF	P18-200	FM-256	1463-PC	RTC-9046	T654	
L9	2nd FM IF	P18-200-1	FM-256	1463-PC	RTC-9046	T654	
L10	3rd FM IF	P18-200-2	FM-256	1463-PC	RTC-9046	T654	
L11	FM Limiter	P18-200-3	FM-256	1463-PC	RTC-9046	T654	
L12	Discriminator	P18-201					
L13	Loopstick	P18-199	BC-419	705-A		T532	

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PACO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No	
L14	AM RF	P18-197					
L15	AM Osc.	P18-194					
L16	1st AM IF	P18-198	BC-356	13-PC1	RTC-8641	T614	
L17	2nd AM IF	P18-198-1	BC-357	13-PC2	RTC-8642	T615	
L18	10KC Filter	P18-193					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PACO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .65A	560VCT @ .090A DC	6.3V@ 4.5A	P18-190					

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PACO PART No.	REPLACEMENT DATA
K1	AM Diode RF Filter	150mmf, 150mmf, 47K	P16-263	Aerovox PA-98 Centralab PC-51 Sprague D-2

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		PACO PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1	1N87	P32-121		1N87	1N87	AM Detector
M2	1N87	P32-121		1N87	1N87	AM Detector (Not used in some versions)

MISCELLANEOUS

ITEM No.	PART NAME	PACO PART No.	NOTES
M3	Tuning Cap.	P16-262	3 Gang, FM Tuning
M4	Tuning Cap.	P16-261	3 Gang, AM Tuning
M5	Switch	P14-258	Function Selector (Rotary Wafer Type)
M6	Switch	P14-259	AFC (Pushbutton Type)
M7	Switch	P14-260	Power Off-On (Pushbutton Type)
	Printed Board	P10-487	FM Circuit
	Printed Board	P10-486	AM Circuit

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	P13-398	
Dial Pointer	P11-342	AM
Dial Pointer	P11-343	FM
Knob	P10-484-2	Tuning
Knob	P10-484	Selector
Knob	P10-135	Pushbutton
Cabinet	P22-176	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

RIVERSIDE MODELS
FJB-6654, FJB-6655

RIVERSIDE MODELS
FJB-6654, FJB-6655

MODEL FJB-6655

RIVERSIDE MODELS
FJB-6654, FJB-6655

TRADE NAME	Riverside Models FJB-6654, FJB-6655	
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois	
TYPE SET	Battery Operated Transistorized Automobile Portable AM Receiver	
POWER SUPPLY	9 Volts DC	RATING 14MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE	BROADCAST 538-1610KC	SHORT WAVE 20MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3 .... GENERAL CEMENT #5097, 8727
WALSCO #2515
A4, A6 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A5 ..... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A7 ..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to base of Converter Transistor. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output.
2.	"	1610KC	"	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	Loop	1400KC	1400KC Signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.					

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KD512

SET 530 FOLDER 12

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	RS-684	Converter	2N412	2N486		PNP
X2	RS-685	1st IF Amplifier	2N410	2N483		PNP
X3	RS-685	2nd IF Amplifier	2N410	2N483		PNP
X4	RS-686	Driver	2N406	2N362		PNP
X5	RS-687	Output	2N408	2N360		PNP
X6	RS-687	Output	2N408	2N360		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	RIVERSIDE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	10	20-106-01	PTT-10010	NLW10-15	TT12X10	MLV10-10	TE-1114	
C2	10	10	20-106-01	PTT-10010	NLW10-15	TT12X10	MLV10-10	TE-1114	
C3	50	10	20-506	PTT-10050	NLW50-10	TT10X50	MLV50-10	TE-1119	
C4	50	10	20-506	PTT-10050	NLW50-10	TT10X50	MLV50-10	TE-1119	
C5	50	10	20-506	PTT-10050	NLW50-10	TT10X50	MLV50-10	TE-1119	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6								
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C9	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C10	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C11	9 NPO 5%		NPO-DI 10	DTZ-10	C10V9C	CCTO-100	CNO-410	10TCC-Q10
C12	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C13	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C14	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C15	3 NPO ±.5mmf		NPO-DI 3.3	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C16	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C19	.1 300V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RIVERSIDE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	10K	½	80A635C	B-15	A47-10K-Z	Q13-116	U18	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-4	SWE-12	76-1	US-26	Power Off-On

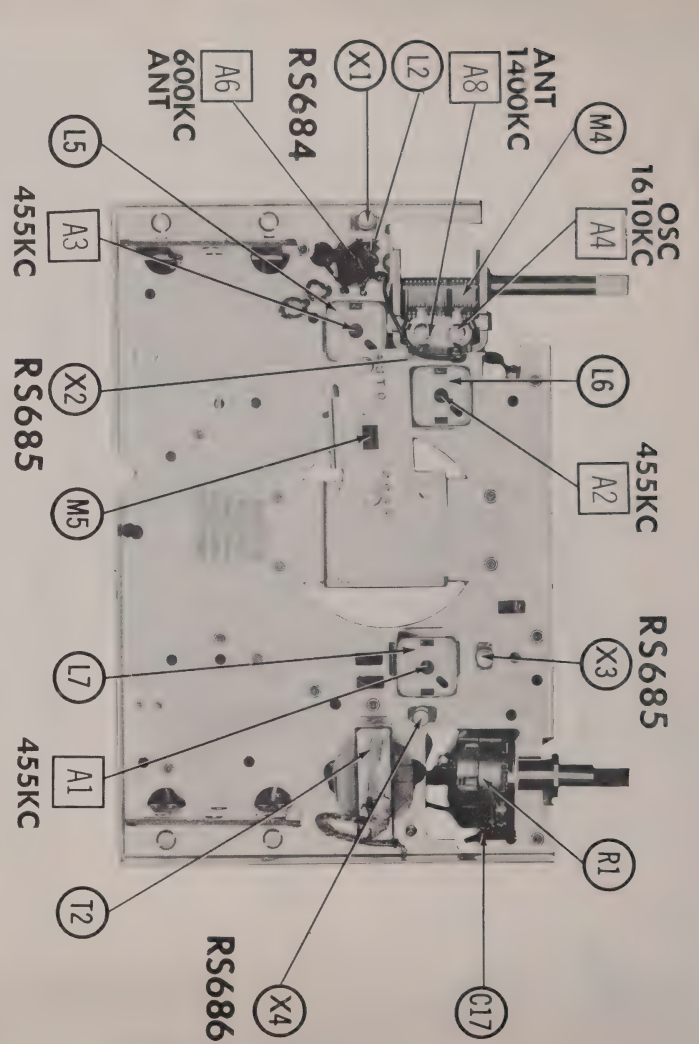
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	18K				R12	100K			
R3	6800Ω				R13	47K			
R4	2700Ω				R14	8200Ω			
R5	1000Ω				R15	680Ω			
R6	12K				R16	6800Ω			
R7	1000Ω				R17	150Ω			
R8	3300Ω				R18	2.0Ω			
R9	27K				R19	470Ω			
R10	4700Ω				R20	470K			(100K) *
R11	1000Ω								

* Alternate Value.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RIVERSIDE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke (6.2uh)	①	BC-565	4610	RTC-8520	T859	① IRC Part #CL-1
L2	Ant.						
L3	Loopstick	10A1543					
L4	Osc.	14A767					
L5	1st IF	14-18					
L6	2nd IF	14-19					
L7	3rd IF	14-20					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RIVERSIDE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2	1	75A787B					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RIVERSIDE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	300Ω CT	3-4Ω	75A1561					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RIVERSIDE PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	73-636 *	5A1 †	*Alternate Part #73B637A. Rear Seat Speaker Part #73X48. †Drill and tap holes in magnet.

BATTERIES

ITEM No.	VOLTAGE	RIVERSIDE PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			230 *		A100 *		M-13R *	* 6 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		RIVERSIDE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N295			1N295	1N295	Overload Detector
M3	1N295			1N295	1N295	

MISCELLANEOUS

ITEM No.	PART NAME	RIVERSIDE PART No.	NOTES
M4	Tuning Cap.	35A1542	2 Gang
M5	Switch		Auto-Port (3PDT Slide Type)

CABINETS & CABINET PARTS

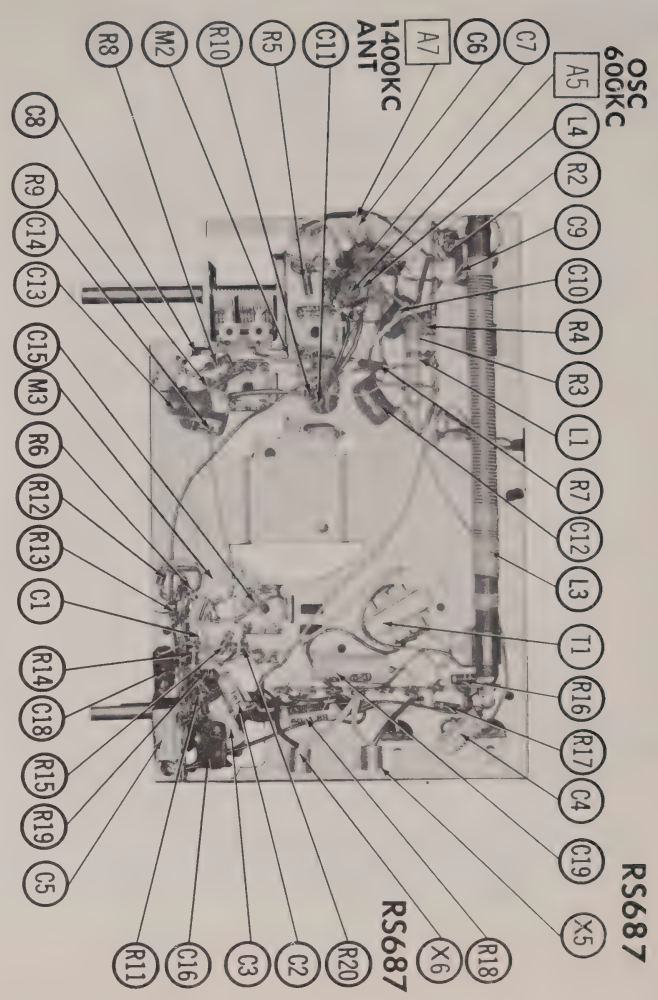
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

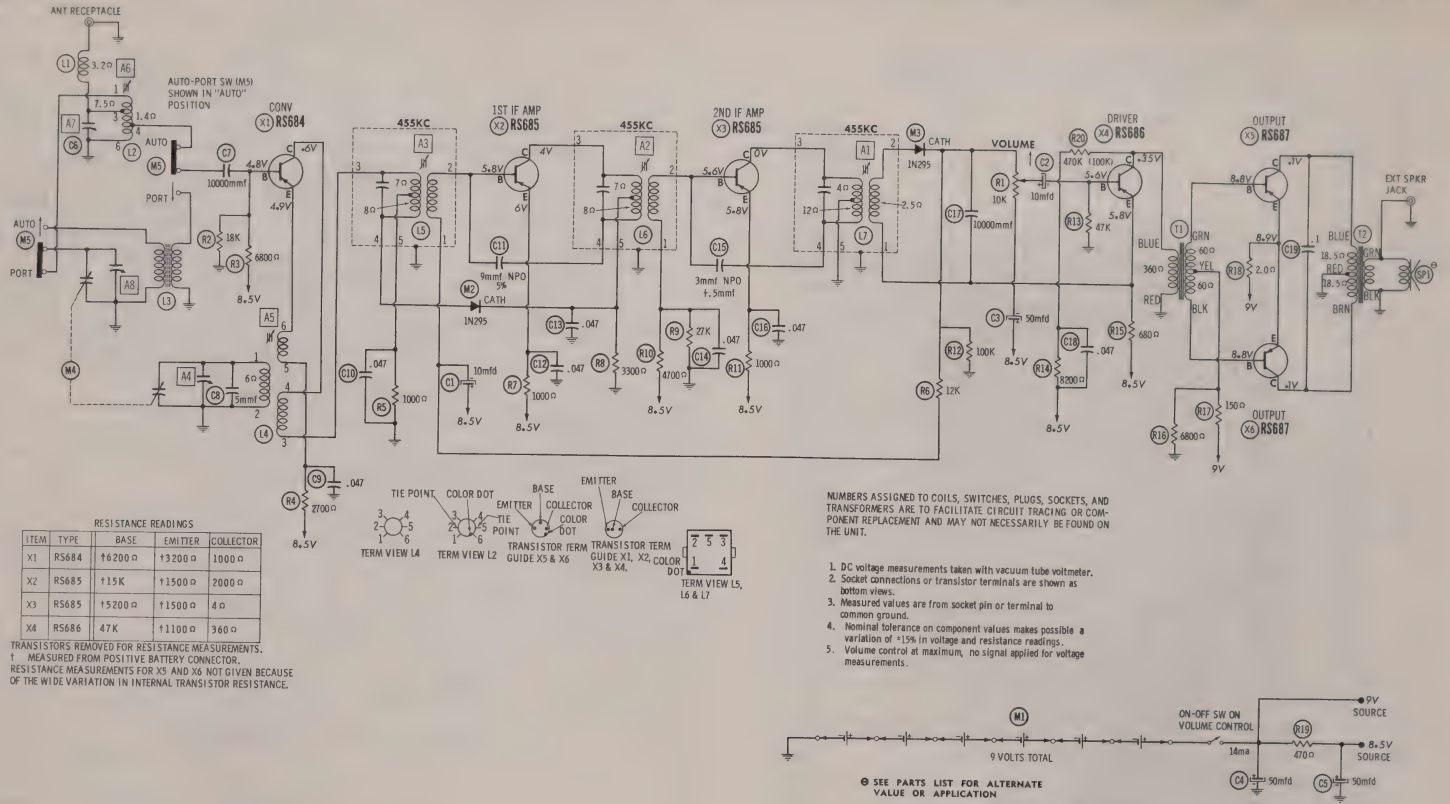
NAME	PART NO.	DESCRIPTION
Knob	47B629-2	Tuning
Knob	47B629-1	Volume
Cabinet	50C1549	

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	RS684	†6200Ω	†3200Ω	1000Ω
X2	RS685	†15K	†1500Ω	2000Ω
X3	RS685	†5200Ω	†1500Ω	4Ω
X4	RS686	47K	†1100Ω	360Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
† MEASURED FROM POSITIVE BATTERY CONNECTOR.
RESISTANCE MEASUREMENTS FOR X5 AND X6 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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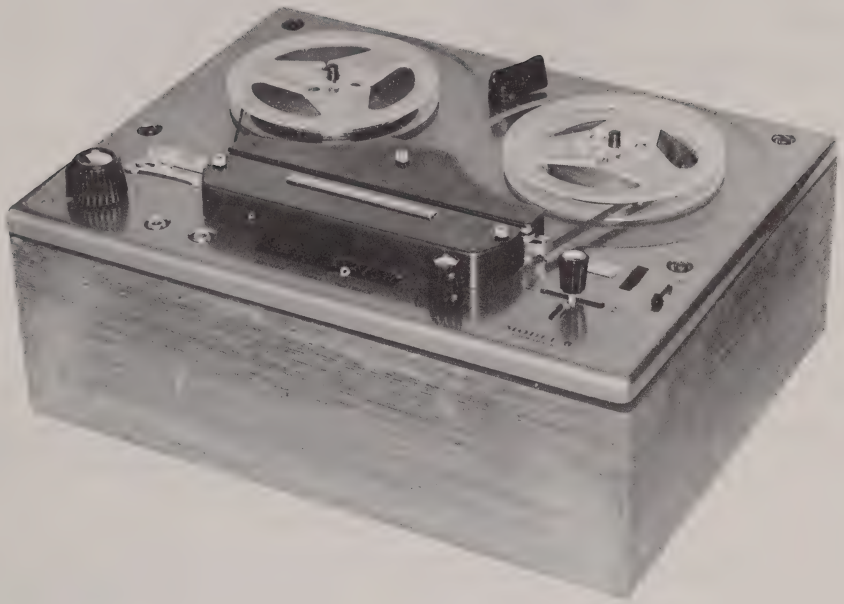
RIVERSIDE MODELS
FJB-6654, FJB-6655

PHOTOFACT® Folder

TANDBERG
MODEL 6

TANDBERG
MODEL 6



TANDBERG
MODEL 6

GENERAL INFORMATION

The Tandberg Series 6 is a four-track stereo tape deck that will record and play back four-track stereo tapes. Two-track monophonic tape may also be played back on the unit.

Recordings may be made from a microphone, radio, tuner, or record changer.

This model has three tape speeds, 7 1/2, 3 3/4, and 1 7/8 ips. Using a four-track tape, recording times are as follows:

Length	7 1/2 ips	3 3/4 ips	1 7/8 ips
1200 ft.	1 hour	2 hours	4 hours
1800 ft.	1 1/2 hours	3 hours	6 hours
2400 ft.	2 hours	4 hours	8 hours

This model is designed to operate on 110, 125, 200, or 245 volts AC, 60 cycles.

Supplied By:

Tandberg of America Corporation
10 East 52nd Street
New York 22, N. Y.

SET 530 FOLDER 13

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of CQ455

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

FUNCTION OF CONTROLS

On-Off Switch

This switch turns on the power to the motor and amplifier circuits.

Speed Selector

The speed selector located at the rear of the recorder selects the tape speed.

Tape Motion Lever

This lever places the recorder in the fast forward, fast rewind, or record/playback mode. Pull the lever to the right for fast forward, to the left for fast rewind, and to the front for record/playback.

Record Pushbuttons (1 and 2)

These buttons operate the Channel 1 and 2 recording channels. Pushbutton 1 operates channel 1 and pushbutton 2 operates channel 2. The buttons lock down only when the tape motion lever is moved to the record/playback mode.

Playback Pushbuttons (1 and 2)

These buttons operate the two playback channels. Pushbutton 1 operates channel 1 and pushbutton 2 operates channel 2. These buttons operate in conjunction with the tape motion lever.

Start-Stop Pushbutton

This button, when depressed, starts or stops the tape motion in the record/playback mode.

Recording Volume Controls

The two recording volume controls adjust the recording level during a recording, either separately or simultaneously. Turn the controls clockwise to increase the recording level.

Output Volume Controls

These controls adjust the output of the recorder during playback. The top knob controls channel 1 and the lower knob controls channel 2. Both knobs are normally set to position 6.

Tape Counter

When starting a new recording, set the index counter to zero. Logging the tape at different points makes it easy to locate any part of a recording.

OPERATING INSTRUCTIONS

Threading the Tape

1. Place a full reel of tape on left turntable.
2. Place an empty reel on right turntable. Be sure both reels are properly seated on the turntables.
3. Unwind about 18 inches of tape. Hold a section of tape taut and insert into tape slot. Feed the free end of the tape into the slot in the hub of the empty reel. Turn the reel counterclockwise until the tape is secured and all slack is taken up between reels.

To Record from Microphone (Stereo)

1. Thread the tape.
2. Move the On-Off switch to the On position.
3. Set the tape counter to zero.
4. Turn the Speed selector knob to the desired speed.
5. Hold down the Record pushbuttons (1 and 2), and move the tape motion lever to the record/play position. The buttons and tape motion lever will then lock in place.
6. Plug microphones into microphone input jacks 1 and 2. Adjust the Recording Volume controls clockwise until the bands of the recording level indicator tubes just touch each other when speaking or playing music into the microphones.
7. Start the recording by depressing the Start-Stop button. Readjustment of the Recording Volume controls will not be necessary unless the luminous bands of the indicator tubes overlap each other.
8. To stop the recording press the Start-Stop button and move the tape motion lever to the neutral position. After track 1 and 3 has been recorded the reels may be turned over to record on tracks 4 and 2.

To Record from Microphone (Monaural)

1. Thread the tape.
2. Move the On-Off switch to the On position.
3. Set the tape counter to zero.
4. Turn the Speed selector knob to the desired speed.
5. Depress the Record pushbutton (button No. 1 for tracks 1 and 4, button No. 2 for tracks 2 and 3).
6. Plug microphone into input jack (jack 1 for tracks 1 and 4, jack 2 for tracks 2 and 3).
7. Adjust the recording level indicator for the channel being used.
8. Press the Start-Stop button to start the recording.
9. After track 1 has been recorded reverse the reels and record track 4. Upon completion of track 4, again reverse the reels. Depress the No. 2 record pushbutton and record tracks 2 and 3 as before.

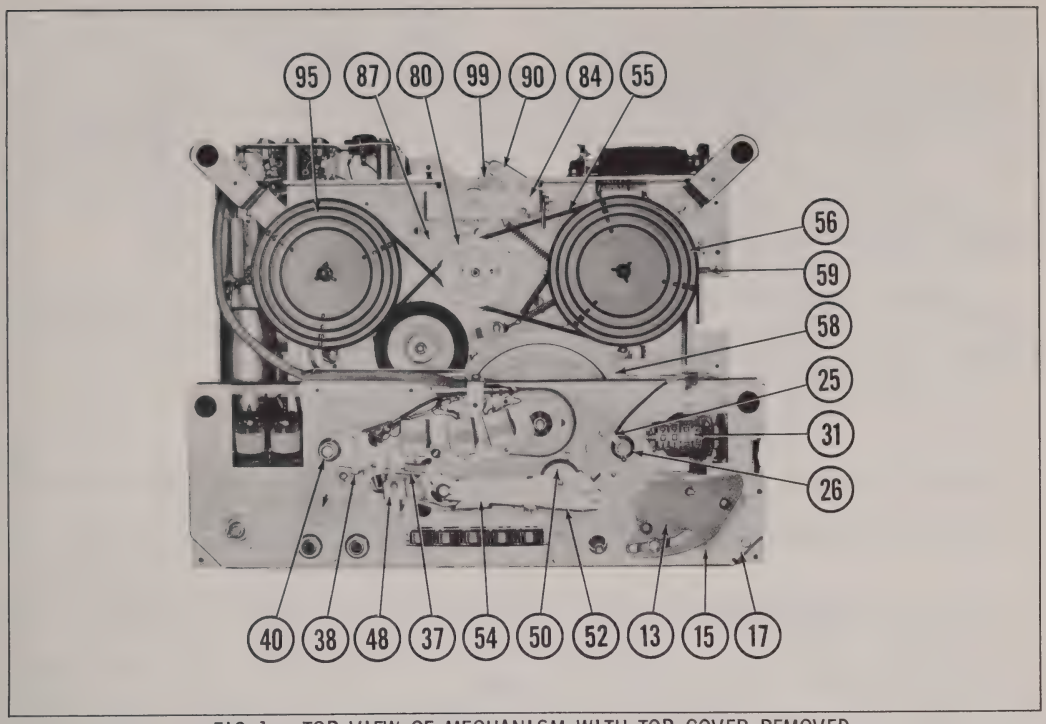


FIG.1 TOP VIEW OF MECHANISM WITH TOP COVER REMOVED

To Record from Radio

1. Connect a shielded lead from radio output (output jack, loudspeaker, or across volume control) to recorder input jack.
2. Tune radio to desired station and adjust volume controls of radio to slightly above normal listening level.
3. Leave the microphone disconnected and proceed as described under "To Record from Microphone (Monaural)".

To Record from Phonograph

1. Connect pickup to recorder input jack.
2. Leave microphone disconnected and proceed as described under "To Record from Microphone (Stereo or Monaural)".

Fast Forward and Rewind

1. For fast forward, move the tape motion lever all the way to the right.
2. For fast rewind, move the tape motion lever all the way to the left.

Playback

NOTE: External amplifiers with speakers, connected to the cathode follower outputs, are required for playback of a recording.

1. Thread the tape.
2. Move the On-Off switch to the On position.
3. Set the Speed selector knob to the speed of the recording.
4. Move the tape motion lever to the record/playback position.
5. For monaural tapes, press one playback button. For stereo tapes press both playback buttons.
6. Start playback by depressing Start-Stop button.
7. Stop playback by depressing Start-Stop button.

Monitoring

To check material being recorded, connect headphones to the output jacks.

Mixing

Two high-level and two low-level inputs are provided for mixing up to four signals when recording monaurally. When recording stereo, three inputs may be used to mix two channels per track.

Recording Sound on Sound

To record sound on sound (adding sound to track 1 channel 1), place the recorder in the record mode and depress record button No. 2. Press playback button No. 1 and turn the sound-on-sound switch. This switch

is located at the bottom of the recorder and can be reached with a screwdriver. Set the recording volume controls for normal recording. Connect the channel 1 output jack to the high level input jack, channel 1. Connect headphones to channel 2 output jack. Start the tape motion. The sound from track 1 and the sound from the microphone is now being recorded on track 3 (channel 2).

The recording volume control (channel 1) adjusts recording level from the prerecorded track, and the recording volume control (channel 2) adjusts recording level from the microphone.

To monitor the recording, depress the playback button No. 2.

CAUTION: Do not connect a second microphone to the other microphone input jack during sound-on-sound recording as this will disconnect the master track.

Erase

Previous recordings are automatically erased during the recording process. To completely erase a prerecorded tape, run the tape in the stereo record mode with both Recording Volume controls set to zero. After the first two tracks are erased, turn the tape over and erase the remaining two tracks.

Automatic Stop

Metallic foils of 14 inches in length may be spliced to the ends of the recording tape to automatically stop the transport when the foil passes the tape switch.

DISASSEMBLY

1. Remove 6 knobs from top of steel top plate (8).
2. Remove front trim cover (5) and rear trim cover (4).
3. Loosen screw in top of right tape guide and move end of tape switch clear of steel top plate (8).
4. Remove six screws holding steel top plate (8) and remove plate.
5. Remove four screws holding tape transport to case. Lift transport out of case.
6. To reassemble, reverse the foregoing procedure.

CLEANING

The heads, capstan, pressure roller, and tape guide accumulate tape oxide coating as the tape passes these parts. These parts should be cleaned periodically with a soft, lint-free cloth dipped in alcohol or a good commercial magnetic head cleaner.

CAUTION: Do not use a brush to clean the heads because of possible damage to the laminations.

LUBRICATION

All rotating parts have oilite bearings. If oil is needed, lubricate the top of the motor bearing with one drop of fine-grade light machine oil. Remove any surplus oil before running the unit. Speed transfer wheel (81) tire and motor pulley must be kept free from oil and grease or the drive will slip.

ADJUSTMENTS

Tape Guides

One adjustable and three fixed guides provide a proper path for the tape. The tape must run at precisely the same height from the left to the right tape guide. The adjustable tape guide is so set that the tape runs an equal distance from its flanges.

Playback Head

The head height should be set so that the upper edge of the tape runs even with the upper air gap of the head. The adjustment screw is found just to the front and rear of the heads. For correct head positioning a prerecorded stereo tape with a 1000 cycle signal on track 1 and a 500 cycle signal on track 3 should be used. The tape should be inverted and played back on the track 2 at maximum playback volume. If the 1000 cycle signal is heard the head must be raised. If the 500 cycle signal is heard the head must be lowered. If neither signal is heard, the head is correctly aligned.

Record Head

Approximately 0.003" of the face of the record head should be visible above the top edge of the tape. Record a 10,000 cycle signal on track 1 and 3. Invert the tape and play back on track 2 and 4. If the signal is heard, the head will have to be raised or lowered. Repeat the test after head adjustment until the signal is unaudible.

Erase Head

The erase head should be adjusted so that 0.01" of the erase head face is visible above the top edge of the tape. Record a 5,000 cycle signal in stereo record (track 1 and 3). Invert the tape, and with the signal source disconnected, run the tape through again in stereo record (track 2 and 4). Again invert the tape. Play back the tape in stereo playback (track 1 and 3). If either channel is attenuated the erase head will have to be moved up or down.

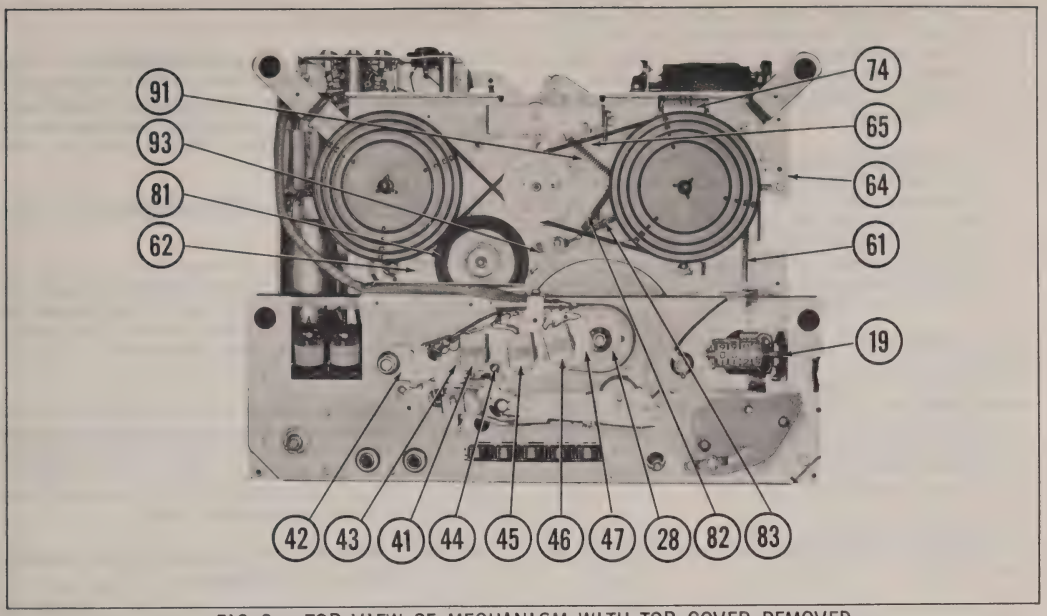


FIG. 2 TOP VIEW OF MECHANISM WITH TOP COVER REMOVED

Take-Up Pulley Disc

The tape motion lever must be placed into the rewind position. Upper clutch lever (74) is adjusted in this position. Trip bar (63) is so positioned that the steel ball on which upper clutch lever rests is in its highest position. The other end of upper clutch lever pushes down on the tags of takeup pulley disc (72) lowering it together with lower clutch lever (60). In this position, there must be more than 1/64" clearance between felt ring on turntable and takeup pulley disc. This clearance can be adjusted by bending the clutch lever slightly. Always make sure that upper clutch lever touches the two tags on takeup pulley disc simultaneously.

Take-Up Turntable

With the tape motion lever in normal forward drive position, takeup turntable (56) must be given enough friction torque by takeup pulley disc (72) to wind the tape during recording or playback. This friction torque should be from 10-14 grams, measured at the end of a spoke in the empty takeup reel. See that the tags on takeup pulley disc are midway between upper clutch lever and lower clutch lever. Upper clutch lever is positioned with its steel ball in the middle and releases the pressure from lower clutch lever on the tags. The pulley disc is pressed against the felt ring on takeup turntable with the force of the compression spring only. Because the felt gradually wears, the clearance between the tag on takeup pulley disc and upper clutch lever should be approximately 1/64 to 3/64". To guard against unwanted upward pressure by lower clutch lever, there should be approximately 1/64" clearance underneath the tags.

Supply Pulley Disc and Supply Clutch Lever

1. With the tape motion lever in fast forward position, the steel ball (102) of supply clutch lever (101) is at its highest position on trip bar (63). Supply clutch lever (101) acts on the tags and disengages the clutch. Clearance between felt and supply pulley disc should be 1/64" to 3/64". Adjust clearance by bending supply clutch lever (101).

2. With the tape motion lever in fast rewind or neutral position, the steel ball is lowered as much as possible, and supply clutch lever (101) is raised to obtain clearance between the lever and the tags. Compression spring (100) has more tension than the corresponding one in the right-hand clutch assembly and supplies all the friction torque itself. The friction torque should be approximately 3 oz., acting on an arm 3 1/2 in. long.

Motor Pulley, Transfer Wheel, and Speed Change

1. Check that the turntables are correctly adjusted.

2. Place the tape motion lever knob (6) in the neutral position. Check the motor pulley (80). It should be fastened in such a position that the dividing rib of the pulley is .02" below the center of the "V" shaped grooves in the pulley discs.

3. Set the Speed change knob (1) to 1 7/8 ips. Adjust the speed selector bracket (84) until the transfer wheel arm (87) is parallel with the lower mounting plate (65). The transfer wheel arm should not touch the lower mounting plate in any position.

4. In the working positions the spacing between the cam disc arm (90) and the transfer wheel mounting arm (87) is .02". If necessary, the spacing is adjustable by bending the nose on the cam disc arm (90). Remove the motor pulley to make this adjustment.

5. Check the speed transfer wheel (81) to see if it is lifted away from the motor pulley (80) in each of the three speed positions with the tape motion lever in neutral and fast forward or rewind. The lifting is adjusted by bending the three tabs on the lifting arm (91).

6. The spacing between the transfer wheel and pulley track is adjusted by means of the turbax washers to .02". The motor pulley must be in its correct position before adjustment. The upper edge of the transfer wheel should be below the upper rim of the flywheel (58). If it is not, the flywheel may be raised by placing an extra steel washer under the flywheel.

OSCILLATOR ADJUSTMENT

Set machine in Record operation on channel 1 and adjust oscillator coil A1 to a frequency of 78 to 80 KC.

Connect the DC probe of VTVM to point Ⓐ. Common to chassis. Adjust A2 for MINIMUM voltage on the VTVM (Less than 150 MV).

Set the machine in Record operation on channels 1 and 2. Adjust A3 for MINIMUM voltage on VTVM (less than 150 MV).

Connect the DC probe of the VTVM to point Ⓑ. Common to chassis. Adjust A4 for MINIMUM voltage on the VTVM (less than 150 MV).

BIAS ADJUSTMENT

Connect the output of a signal generator to the high level input of both amplifiers and set to 3000 cycles. Connect OUTPUT meters to the Output jacks and insert tape. Depress all buttons and set operating lever to normal drive. Adjust R9 and R10 for maximum output on both meters.

RECORDING CURRENT, MEASUREMENTS OF DISTORTION

Set both Playback Volume controls fully clockwise. Connect the signal generator (set to 400 cycles) to the input. Depress 1st, 2nd, 4th and 5th buttons and set operating lever to normal drive. With a VTVM, measure the voltage at the output terminals. Adjust the Record Volume control for 1.5 volts out.

Connect a distortion meter to the output jack. Record and play back (depress 3rd button) 400 cycles on upper and lower tracks respectively with the corresponding amplifiers. Adjust R3 and R4 respectively for 3% distortion. Adjust R5 and R6 so that the Recording Level Indicator light beams touch each other.

Adjust R7 and R8 for 1.5 volts output with the Playback Volume control set to maximum.

Release the 4th and 5th button and check to see that the output voltage is still 1.5 volt.

TROUBLE CHART

Symptom	Cause	Remedy
Does not operate in any mode.	1. Drive belt (55) out of place or broken.	1. Remove steel top plate (8) and replace belt. The belt runs from the lower groove on motor pulley (80) to takeup pulley disc (72) and then to the upper groove of motor pulley. The belt crossover is to the left of motor pulley (80). The height of the motor pulley should be checked.
	2. Motor locks and stalls.	2. Replace motor and adjust motor pulley (80).
Does not operate in normal forward drive.	1. Pressure roller (50) on pressure roller arm assembly is not in place.	1. Replace pressure roller using a new retaining ring. Special pliers should be used to install new ring so as not to bend it.
Slow speed in 1 7/8 ips. position.	1. Not enough friction between speed transfer wheel (81) and motor pulley (80).	1. Check for proper clearance of speed transfer wheel holder (93).
	2. Extension spring (82) or (83) for speed transfer wheel does not exert enough force.	2. Shorten extension spring (82) or (83) until it pulls properly in.
	3. Speed transfer wheel (81) rubs underneath motor pulley (80).	3. Adjust motor pulley.
	4. Incomplete disengagement of supply pulley disc (98), causing too much friction in supply turntable.	4. Adjust supply pulley disc (98).

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
Takes unreasonably long time to reach full speed.	1. The motor does not have sufficient starting torque.	1. Replace motor.
	2. Takeup clutch friction is too high.	2. Adjust takeup clutch.
	3. Takeup pulley disc (72) bearing friction too high.	3. Replace takeup pulley disc (72).
Tape runs unevenly in Fast Forward.	1. Friction too high in supply turntable (95).	1. Supply pulley disc (98) must run free of the turntable.
	2. Insufficient torque at takeup pulley disc (72).	2. Replace takeup turntable (56). Replace spring (79) on lower clutch lever (60).
Tape runs unevenly in Rewind.	1. Supply clutch lever (101) sticks.	1. Adjust the ears supporting supply clutch lever.
	2. The tags on supply pulley disc (98) have slipped from their catches.	2. Assemble correctly.
Tape reels rub on steel top plate.	1. The steel top plate mounting screws are not tight.	1. Tighten screws.
	2. Takeup or supply turntable out of position.	2. Check turntable for proper height.
Tape climbs.	1. Felt pad pressed unevenly against erase head (41).	1. Twist pressure pad and spring for correct alignment against head.
	2. Adjustable tape guide (44) is loose.	2. Adjust tape guide.
	3. Pressure roller (50) exerts uneven pressure on capstan.	3. Adjust the latch on pressure roller arm assembly slightly.
Low output in playback.	1. Tape guide (44) misadjusted.	1. Adjust tape guide.
	2. Playback head (46) dirty or defective.	2. Clean or replace playback head.
Track overlap.	1. Record head (45) or playback head (46) incorrectly aligned.	1. Align record or playback head.
Insufficient erasure.	1. Erase head (41) misaligned.	1. Align erase head.

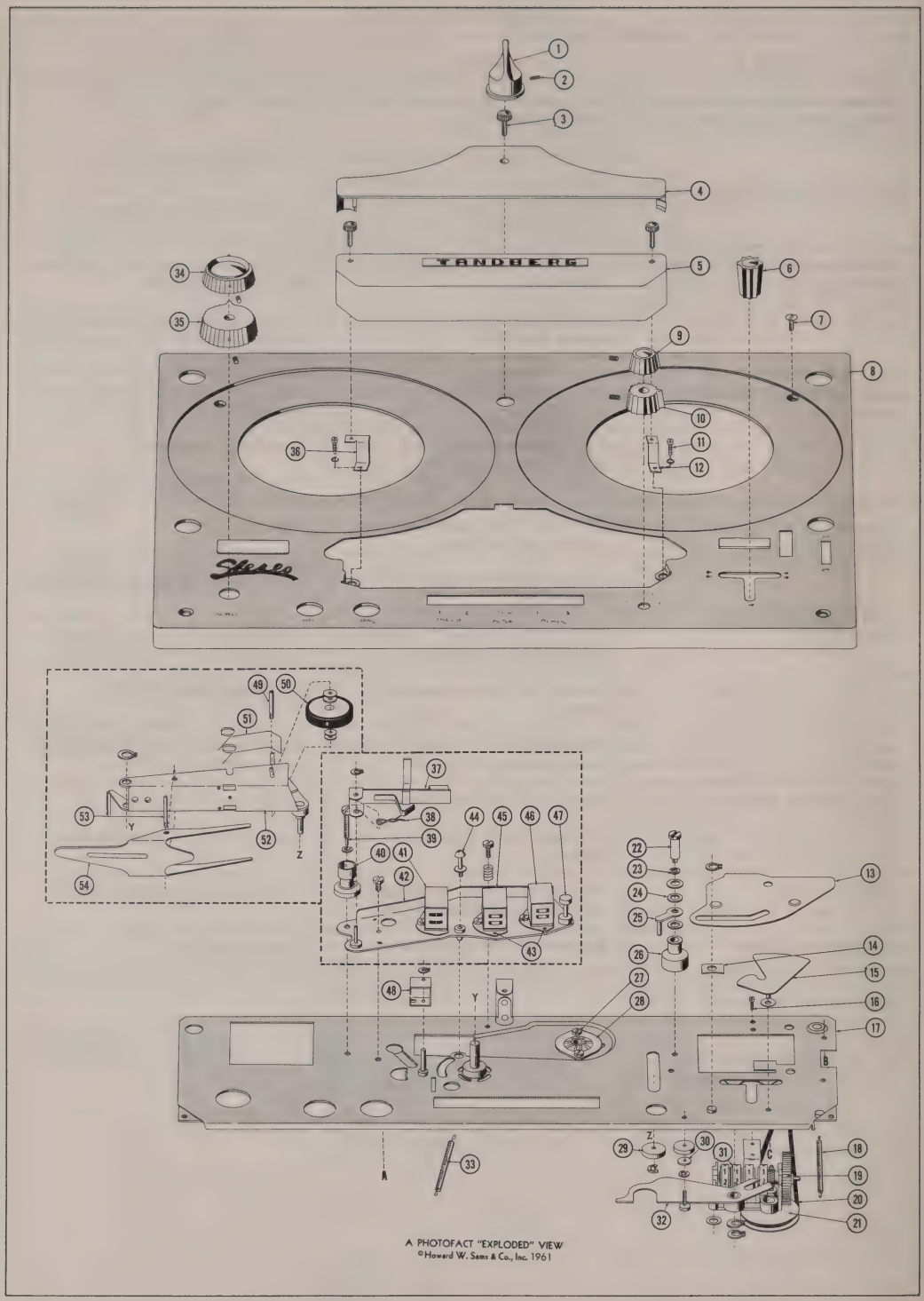


FIG.3A EXPLODED VIEW OF PARTS ABOVE UPPER MOUNTING PLATE

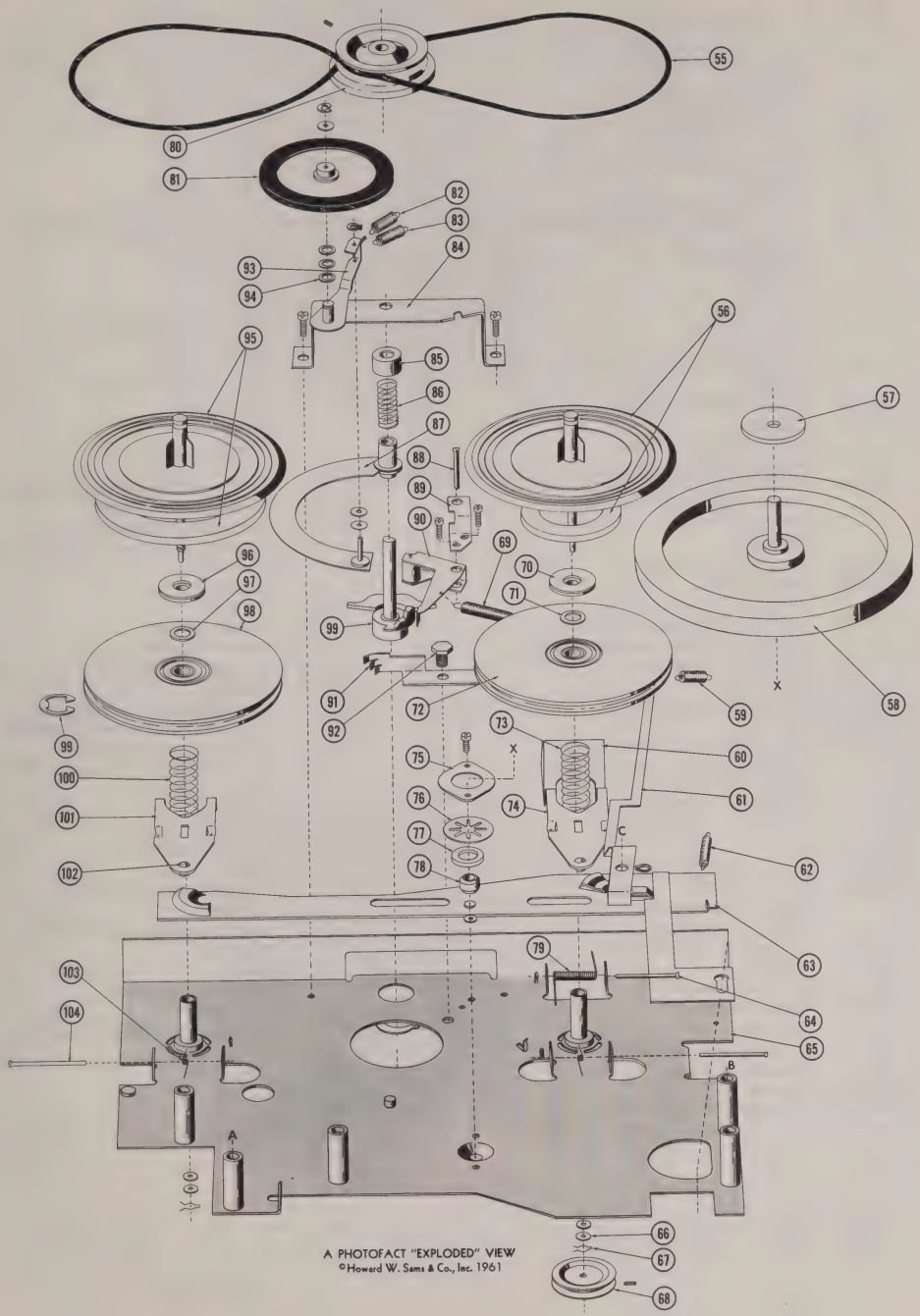
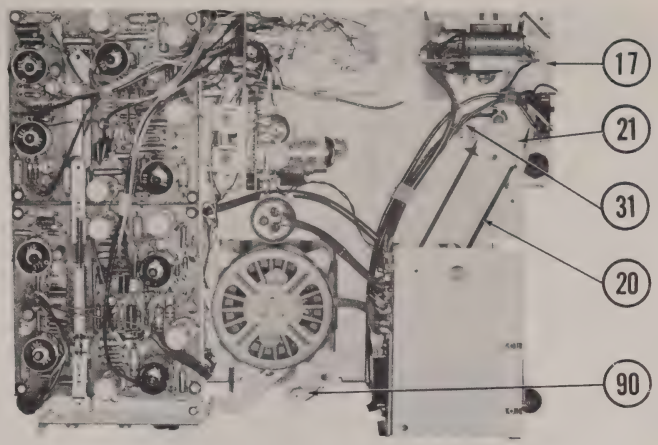
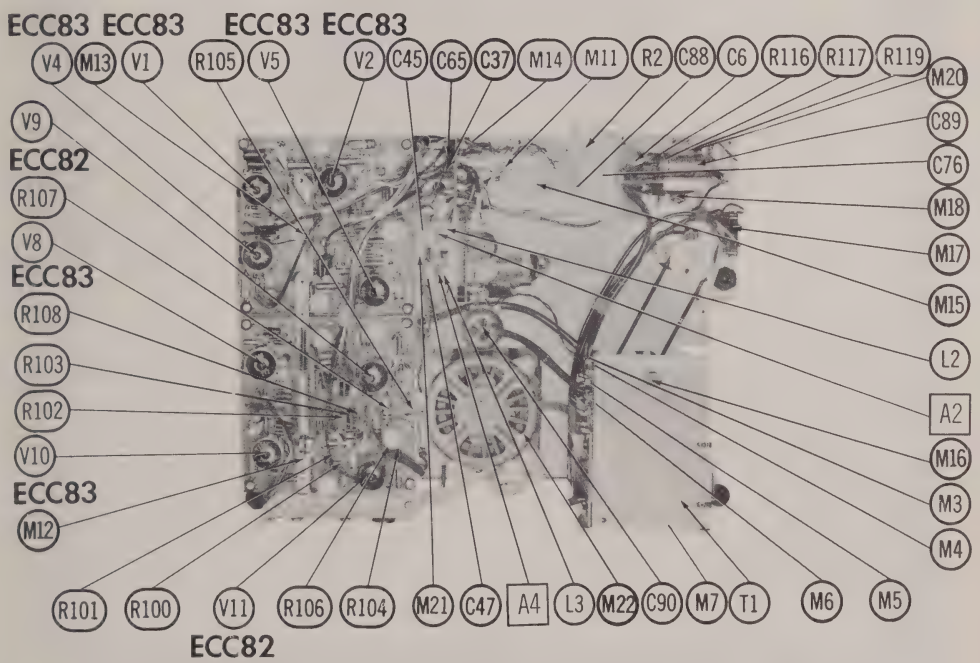


FIG. 3 B EXPLODED VIEW OF PARTS ABOVE LOWER MOUNTING PLATE

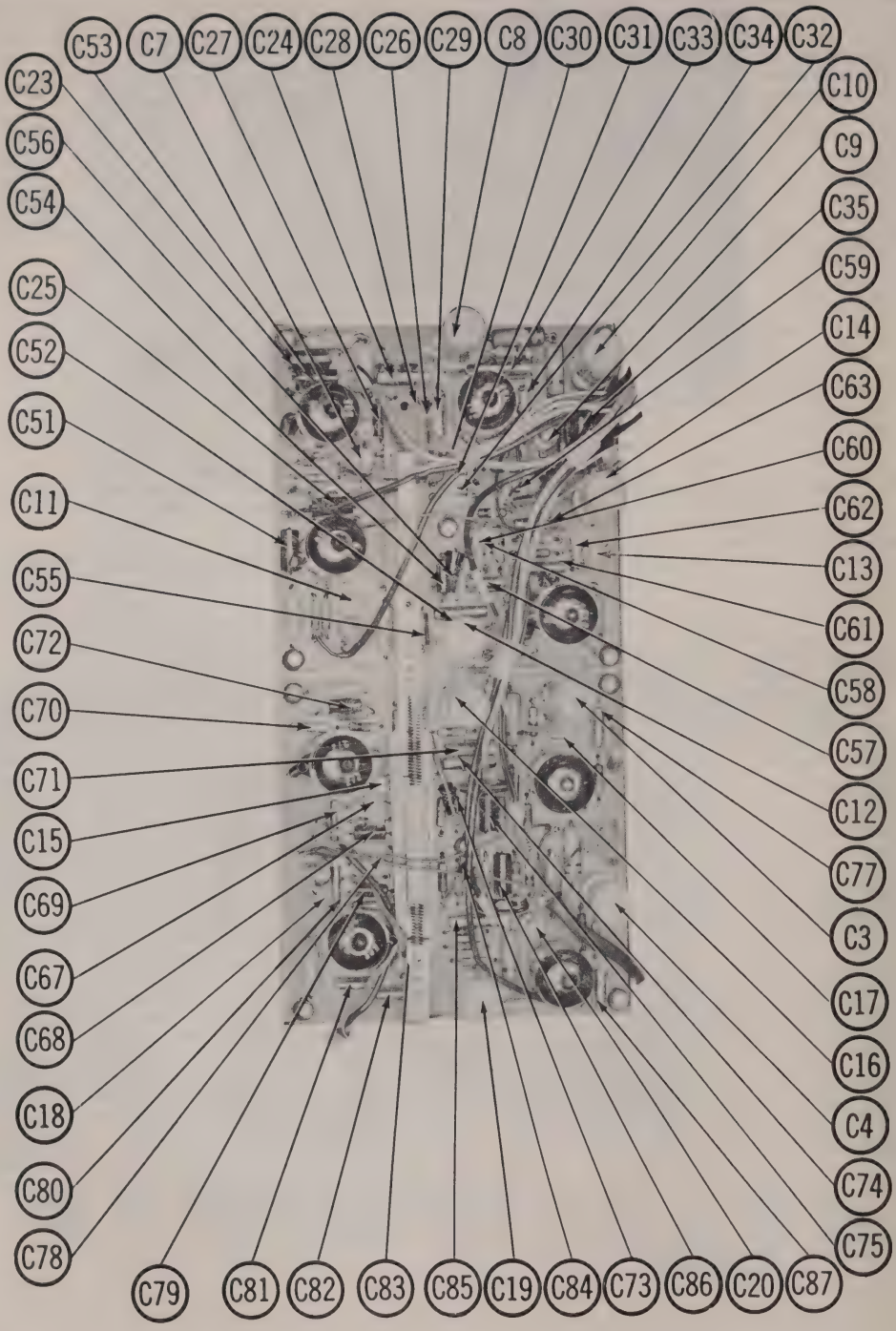
Ref. No.	Part No.	Description
1	107.31	Speed Selector Knob
2		Set Screw
3	141.6	Trim Cover Screw
4	102.33	Rear Trim Cover
5	102.3	Front Trim Cover
6	107.41	Tape Motion Lever Knob
7	141.9	Screw
8	101.32	Top Metal Plate Cover
9	107.62	Double Knob, Playback Volume Control
10		Part of Item 9
11		Screw
12		Mounting Bracket
13	145.49	Cover Plate I
14		Tension Spring
15	154.50	Cover Plate II
16		Screw
17	138.30	Upper Mounting Plate
18	127.31	Spring
19		Counter Reset Wheel
20	117.3	Counter Drive Belt
21	145.94	Counter Drive Pulley
22		Tape Guide Mounting Bolt
23		Washer
24		Washer
25	145.99	End-Stop Contact
26	145.98	Tape Guide
27		Screw
28	145.29	Latch for Flywheel Bearing
29	145.22	Pressure Wheel Bracket Roller
30	145.21	Movement Limiter
31	146.3	Counter
32	145.19	Eccentric Segment
33	127.26	Spring
34	107.61	Record Volume Control Knob
35		Record Volume Control Knob
36		Mounting Bracket
37	145.84	Pressure Pad Arm
38	127.32	Spring
39		Bolt
40	145.95	Tape Guide
41	125.54	Erase Head
42		Head Mounting Plate
43		Height Adjustment Screws
44	145.97	Adjustable Tape Guide
45	125.5	Record Head
46	125.6	Playback Head
47	145.96	Tape Guide
48		Bracket
49	145.77	Pressure Roller Shaft
50	120.1	Pressure Roller
51	127.29	Spring
52	120.51	Pressure Roller Bracket
53	145.79	Pressure Roller Lever Shaft
54	145.78	Pressure Roller Lever
55	117.2	Drive Belt
56	119.1	Right Turntable with Felt
57		Spacer
58	118.2	Flywheel
59		Spring
60	145.15	Lower Clutch Lever
61	145.8	Transfer Wheel Lifting Arm with Linkage Arm.
62	127.10	Spring
63	145.26	Trip Bar
64	145.89	Shaft
65	138.29	Lower Mounting Plate
66		Spacer
67		Hairpin Clip
68	145.93	Counter Drive Pulley
69	127.4	Spring
70	145.34	Flange
71		Spacer
72	119.51	Pulley Disc
73	127.8	Compression Spring, (Takeup)
74	145.86	Upper Clutch Lever
75	145.30	Latch for Flywheel Bearing
76	127.12	Spring for Lower Flywheel Bearing
77	145.1	Felt Ring
78	145.31	Bushing
79	127.33	Spring
80	116.53	Motor Pulley
81	121.2	Speed Transfer Wheel
82	127.7	Spring
83	127.7	Spring
84	146.2	Speed Selector Bracket
85	145.41	Cup for Speed Selector Spring
86	127.13	Speed Selector Spring
87	145.82	Mounting Arm, Transfer Wheel
88	145.12	Shaft
89	145.90	Bracket
90	145.11	Cam Disc Arm
91		Same as Item 61
92		Bolt
93	145.81	Transfer Wheel Holder
94		Washer
95	119.2	Left Turntable with Felt
96	145.34	Flange
97		Spacer
98	119.2	Supply Pulley Disc
99	145.10	Cam Disc
100	127.9	Compression Spring (Supply)
101	145.87	Clutch Lever
102		Steel Ball
103	127.35	Spring
104	145.89	Shaft



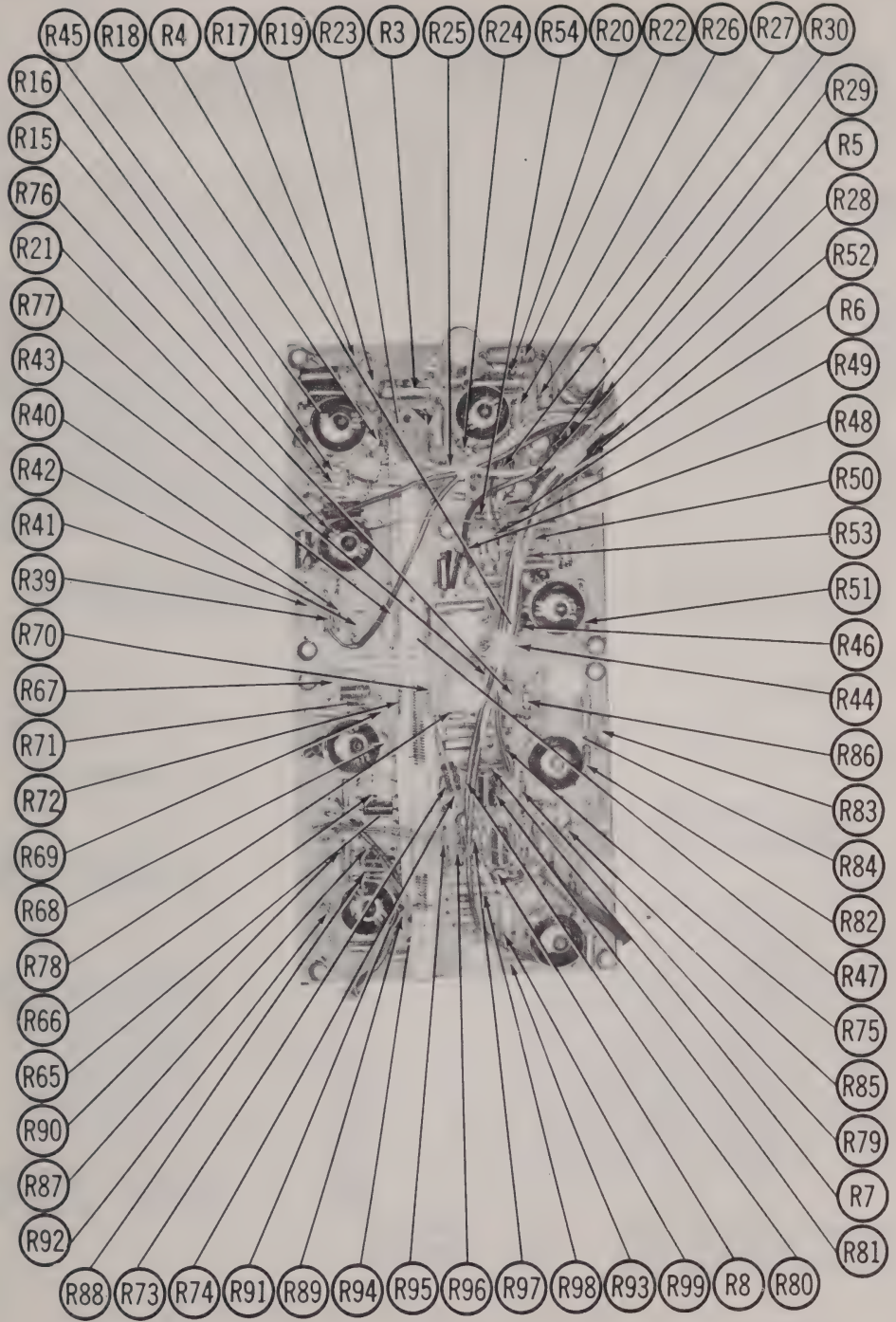
MECHANISM BOTTOM VIEW-MECHANICAL IDENT.



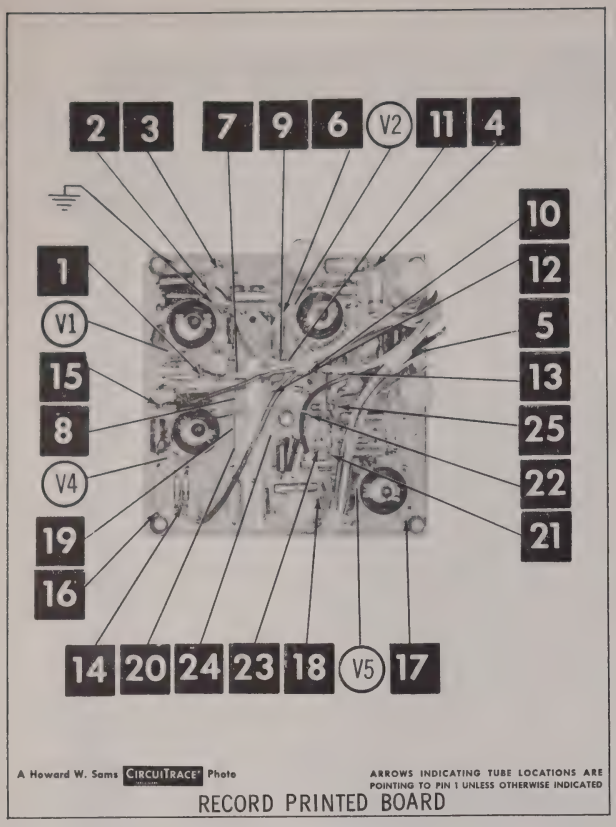
MECHANICAL BOTTOM VIEW-ELECTRICAL IDENT.



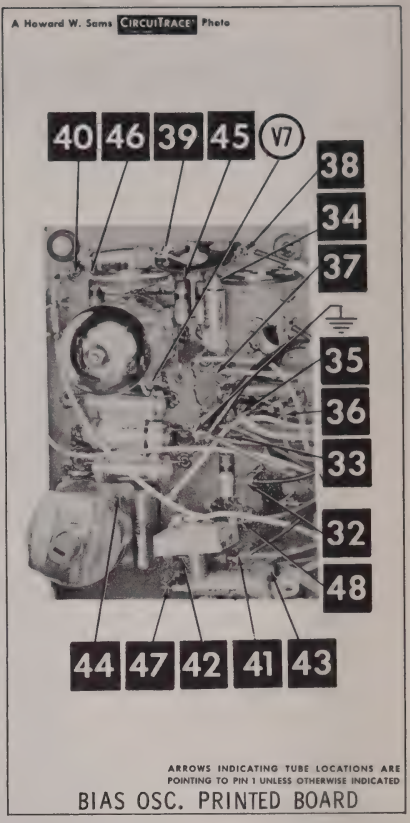
PRINTED BOARD-CAPACITOR IDENT.



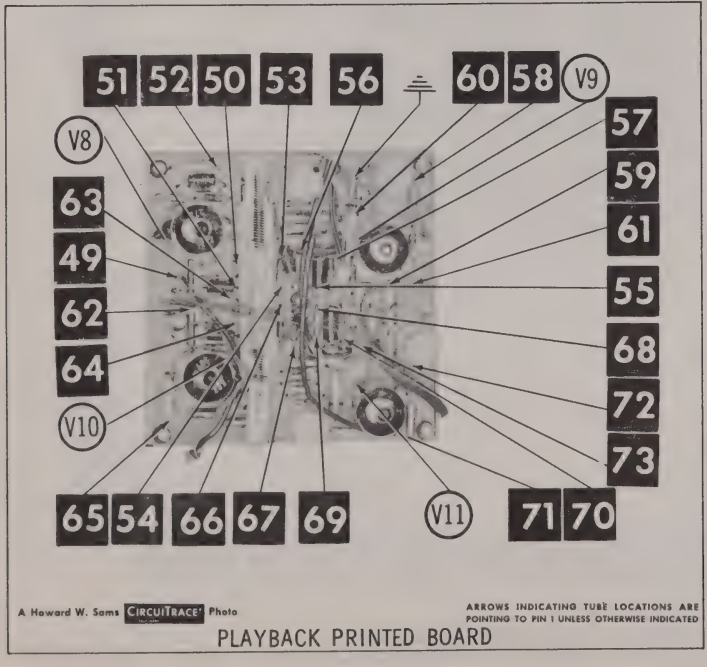
PRINTED BOARD - RESISTOR IDENT.



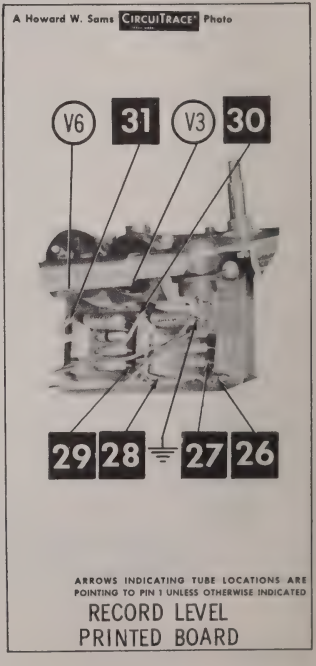
RECORD PRINTED BOARD



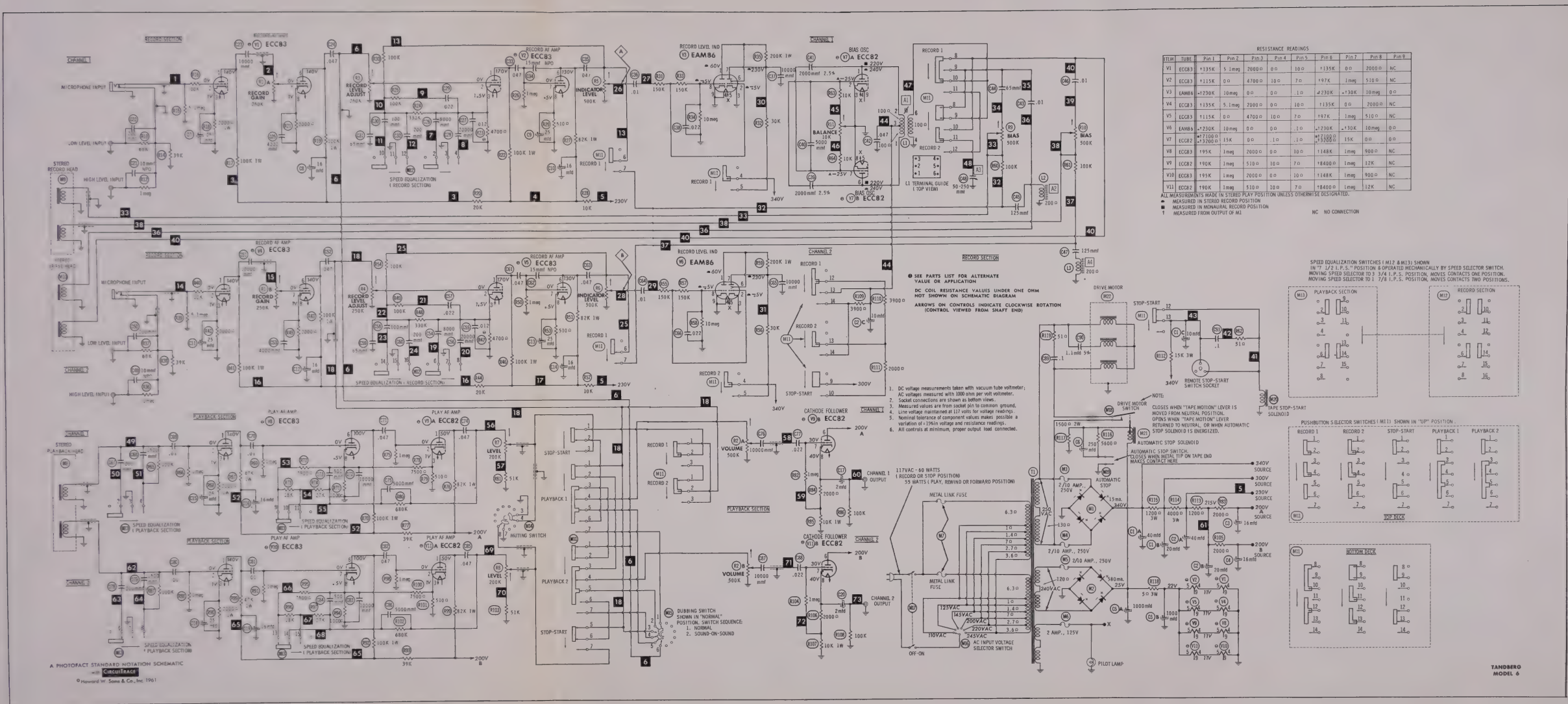
BIAS OSC. PRINTED BOARD



PLAYBACK PRINTED BOARD



RECORD LEVEL PRINTED BOARD



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	†135K	5.1meg	2000Ω	0Ω	10Ω	†135K	0Ω	2000Ω	NC
V2	ECC83	†115K	0Ω	4700Ω	1Ω	7Ω	†97K	1meg	510Ω	NC
V3	EAM86	▪†230K	10meg	0Ω	0Ω	.1Ω	▪†230K	▪†30K	10meg	0Ω
V4	ECC83	†135K	5.1meg	2000Ω	0Ω	10Ω	†135K	0Ω	2000Ω	NC
V5	ECC83	†115K	0Ω	4700Ω	1Ω	7Ω	†97K	1meg	510Ω	NC
V6	EAM86	▪†230K	10meg	0Ω	0Ω	.1Ω	▪†230K	▪†30K	10meg	0Ω
V7	ECC82	■†7100Ω ▪†3200Ω	15K	0Ω	.1Ω	.1Ω	■†7100Ω ▪†3200Ω	15K	0Ω	0Ω
V8	ECC83	†95K	1meg	2000Ω	0Ω	10Ω	†148K	1meg	900Ω	NC
V9	ECC82	†90K	1meg	510Ω	1Ω	7Ω	†8400Ω	1meg	12K	NC
V10	ECC83	†95K	1meg	2000Ω	0Ω	10Ω	†148K	1meg	900Ω	NC
V11	ECC82	†90K	1meg	510Ω	1Ω	7Ω	†8400Ω	1meg	12K	NC

ALL MEASUREMENTS MADE IN STEREO PLAY POSITION UNLESS OTHERWISE DESIGNATED.
▪ MEASURED IN STEREO RECORD POSITION
■ MEASURED IN MONAURAL RECORD POSITION
† MEASURED FROM OUTPUT OF M1

NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

CIRCUITRACE

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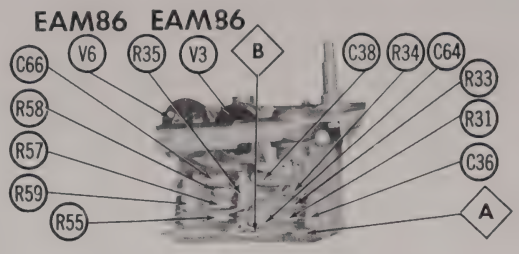
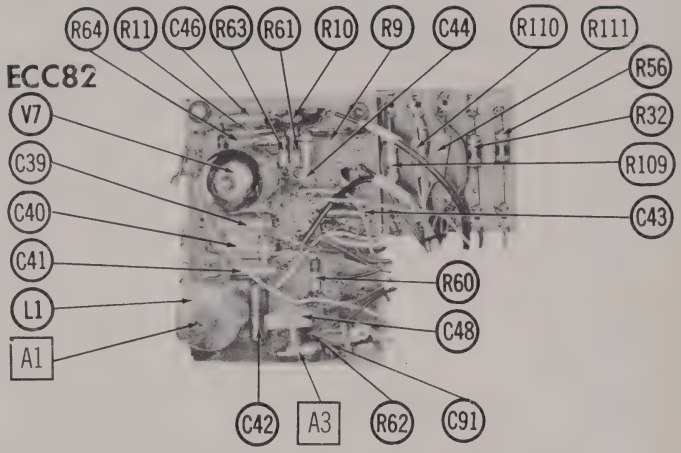
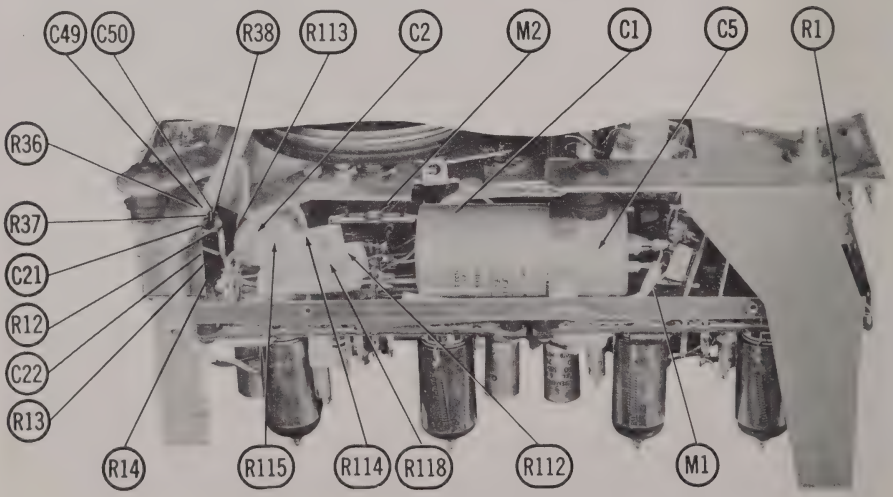


RECORD LEVEL PRINTED BOARD



BIAS OSC. PRINTED BOARD



CHASSIS-BOTTOM VIEW

ELECT. PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Channel 1 Record AF Amp.	ECC83 (12AX7, 7025) *
V2	Channel 1 Record AF Amp.	ECC83 (12AX7, 7025) *
V3	Channel 1 Record Level Ind.	EAM86
V4	Channel 2 Record AF Amp.	ECC83 (12AX7, 7025) *
V5	Channel 2 Record AF Amp.	ECC83 (12AX7, 7025) *
V6	Channel 2 Record Level Ind.	EAM86
V7	Bias Oscillator	ECC82 (12AU7) *
V8	Channel 1 Play AF Amp.	ECC83 (12AX7, 7025)
V9	Channel 1 Play AF Amp. - Cathode Follower	ECC82 (12AU7) *
V10	Channel 2 Play AF Amp.	ECC83 (12AX7) *
V11	Channel 2 Play AF Amp. - Cathode Follower	ECC82 (12AU7) *

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TANDBERG PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	350		AFH3-28-30	C0225	FP330.7	TMT-3432	TVL-3639.8	
B	20	350							
C	10	350							
C2A	40	350		AFH3-28-30	C0225	FP330.7	TMT-3432	TVL-3639.8	
B	20	350							
C	10	350							
C3	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C4	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C5A	1000	35						TVL-1338	
B	1000	35						HLVBI050	
C6	250	30		PRS1380	BR2505	TC50025	TD-250-50	TVA-1312	
C7	25	6		PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C8	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C9	25	6		PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C10	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C11	25	6		PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C12	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C13	25	6		PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C14	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C15	25	6		PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C16	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C17	2	70		PRS1705	NLW2-100	TT150X2	MLV2-100	TE-1401	
C18	25	6		PTT-6025	NLW25-10	TT6X25	MLV25-6	TE-1091	
C19	16	350		PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C20	2	70		PRS1705	NLW2-100	TT150X2	MLV2-100	TE-1401	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	10 NPO		NPO-SI 10	TCZ-10	C10QIC	CCTO-100	CNO-410	10TCC-Q10
C22	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C23	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C25	4000		SI 4000	D6-402	BYA10D4	CCD-392	B-240	10TS-D40
C26	8000			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C27	.012 150V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C28	20000		SI 20000	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C30	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C31	65		SI 68	D6-680	L10Q68	CCD-680	GP468	10TS-Q68
C32	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C33	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C34	15 NPO		NPO-SI 15	TCZ-15	C10QI5C	CCTO-150	CNO-415	10TCC-Q15
C35	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C36	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C37	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C39	2000 2.5%					CM-20E-202G	MCE460	
C40	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C41	2000 2.5%					CM-20E-202G	MCE460	

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C42	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C43	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C44	65		SI 68	D6-680	L10Q68	CCD-680	GP468	10TS-Q68
C45	125		SI 120	D6-121	L10T12	CCD-121	GP320	10TS-T12
C46	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C47	125		SI 120	D6-121	L10T12	CCD-121	GP320	10TS-T12
C48	50-250					426		
C49	10 NPO		NPO-SI 10	TCZ-10	C10QIC	CCTO-100	CNO-410	10TCC-Q10
C50	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C51	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C52	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C53	4000		SI 4000	D6-402	BYA10D4	CCD-392	B-240	10TS-D40
C54	8000			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C55	.012 150V		P288N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C56	20000		SI 20000	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C57	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C58	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C59	65		SI 68	DD-680	L10Q68	CCD-680	GP468	10TS-Q68
C60	200		SI 200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C61	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C62	15 NPO		NPO-SI 15	TCZ-15	C10QI5C	CCTO-150	CNO-415	10TCC-Q15
C63	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C64	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C65	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C66	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C67	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C68	1500		SI 1500	D6-152	BYA10D15	CCD-152	B-215	5HK-D15
C69	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C70	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C71	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C72	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C73	500		SI 500	D6-501	BYA10T5	CCD-501	B-350	10TS-T50
C74	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C75	5000		SI 5000	D6-502	BYA10D5	CCD-503	B-250	5HK-D50
C76	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C77	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C78	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C79	1500		SI 1500	D6-152	BYA10D15	CCD-152	B-215	5HK-D15
C80	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C81	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C82	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C83	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C84	500		SI 500	D6-501	BYA10T5	CCD-501	B-350	10TS-T50
C85	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C86	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C87	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C88	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C89	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C90	1.1mfd 380V 5%							
C91	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TANDBERG PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K							Record Gain, Channel 2
B	250K							Record Gain, Channel 1
R2A	500K							Volume, Playback, Channel 2
B	500K							Volume, Playback, Channel 1
R3	250K							Record Level Adj., Channel 1
R4	250K							Record Level Adj., Channel 2
R5	500K							Indicator Level, Channel 1
R6	500K							Indicator Level, Channel 2
R7	200K							Playback Level, Channel 1
R8	200K							Playback Level, Channel 2
R9	500K							Bias, Channel 1
R10	500K							Bias, Channel 2
R11	10K							Balance

ELECT. PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	1meg			
R13	68K			
R14	39K			
R15	5.1meg			
R16	10K			
R17	100K 1W			
R18	2000Ω 1W			
R19	100K 1W			
R20	20K			
R21	2000Ω			
R22	100K 1W			
R23	4700Ω			Note 1
R24	330K			
R25	100K			
R26	1meg			
R27	82K 1W			
R28	10K			
R29	510Ω			
R30	100K			
R31	150K			
R32	30K			
R33	150K			
R34	10meg			
R35	200K 1W			
R36	1meg			
R37	68K			
R38	39K			
R39	5.1meg			
R40	10K			
R41	100K 1W			
R42	2000Ω			
R43	100K 1W			
R44	20K			
R45	2000Ω			
R46	100K 1W			
R47	4700Ω			Note 1
R48	330K			
R49	100K			
R50	1meg			
R51	82K 1W			
R52	10K			
R53	510Ω			
R54	100K			
R55	150K			
R56	30K			
R57	150K			
R58	10meg			
R59	200K 1W			
R60	100K			
R61	100K			
R62	51Ω			
R63	10K			
R64	10K			
R65	100K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R66	1meg			
R67	47K 1W			
R68	2000Ω 1W			
R69	1meg			
R70	100K 1W			
R71	1000Ω			
R72	7500Ω			
R73	18K			
R74	27K			
R75	1meg			
R76	82K 1W			
R77	39K			
R78	7500Ω			
R79	510Ω			
R80	680K			
R81	51K			
R82	1meg			
R83	2000Ω			
R84	2000Ω			
R85	10K 1W			
R86	100K			
R87	100K			
R88	1meg			
R89	47K 1W			
R90	2000Ω 1W			
R91	1meg			
R92	100K 1W			
R93	39K			
R94	1000Ω			
R95	7500Ω			
R96	18K			
R97	27K			
R98	1meg			
R99	82K 1W			
R100	7500Ω			
R101	510Ω			
R102	680K			
R103	51K			
R104	1meg			
R105	2000Ω			
R106	2000Ω			
R107	10K 1W			
R108	100K			
R109	3900Ω			
R110	3900Ω			
R111	2000Ω			
R112	15K 3W	PW5-15K	5W-SQ-15K	
R113	1200Ω			
R114	4000Ω 3W	PW5-4000	5W-SQ-4000	
R115	1200Ω 3W	PW5-1200	5W-SQ-1200	
R116	5600Ω			
R117	1500Ω 2W			
R118	5Ω 3W	PW5-5	5W-SQ-5	
R119	5Ω			

Note 1. Value varies from 3900Ω - 5100Ω. Replace with original value.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	TANDBERG PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	
T1	117V Ⓐ .6A	250V Ⓐ .150A AC	24V Ⓐ .850A AC	273 (110,14)					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 1.1A								

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TANDBERG PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.015A	B250C75 *				* Bridge Type, Selenium
M2	.580A	B30C1000 *				

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TANDBERG PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	2/10A 250V S/B			313.200 (3AG 2/10A 250V S/B)		MDL 2/10	
M4	3AG	2/10A 250V S/B			313.200 (3AG 2/10A 250V S/B)		MDL 2/10	
M5	3AG	2/10A 250V S/B			313.200 (3AG 2/10A 250V S/B)		MDL 2/10	
M6	3AG	2A 125V S/B			313002 (3AG 2A 125V S/B)		MDX2	
M7	Metal Link (2 Required)							

MISCELLANEOUS

ITEM No.	PART NAME	TANDBERG PART No.	NOTES
M8	Head		Playback
M9	Head		Record
M10	Head		Erase
M11	Switch	2329	Function Selector (Pushbutton Type)
M12	Switch	5015	Equalization, Record
M13	Switch	5016	Equalization, Playback
M14	Switch	2258	Muting (Rotary)
M15	Switch	5115	Sound-On-Sound (Dubbing)
M16	Switch		AC Volts Input Selection
M17	Switch	134.1	Power Off-On
M18	Switch		Motor
M19	Switch		Automatic Stop
M20	Solenoid		Tape Start-Stop
M21	Solenoid		Automatic Stop
M22	Motor		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TANDBERG PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Bias Osc.						78 KC
L2	RF Choke						
L3	RF Choke						

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

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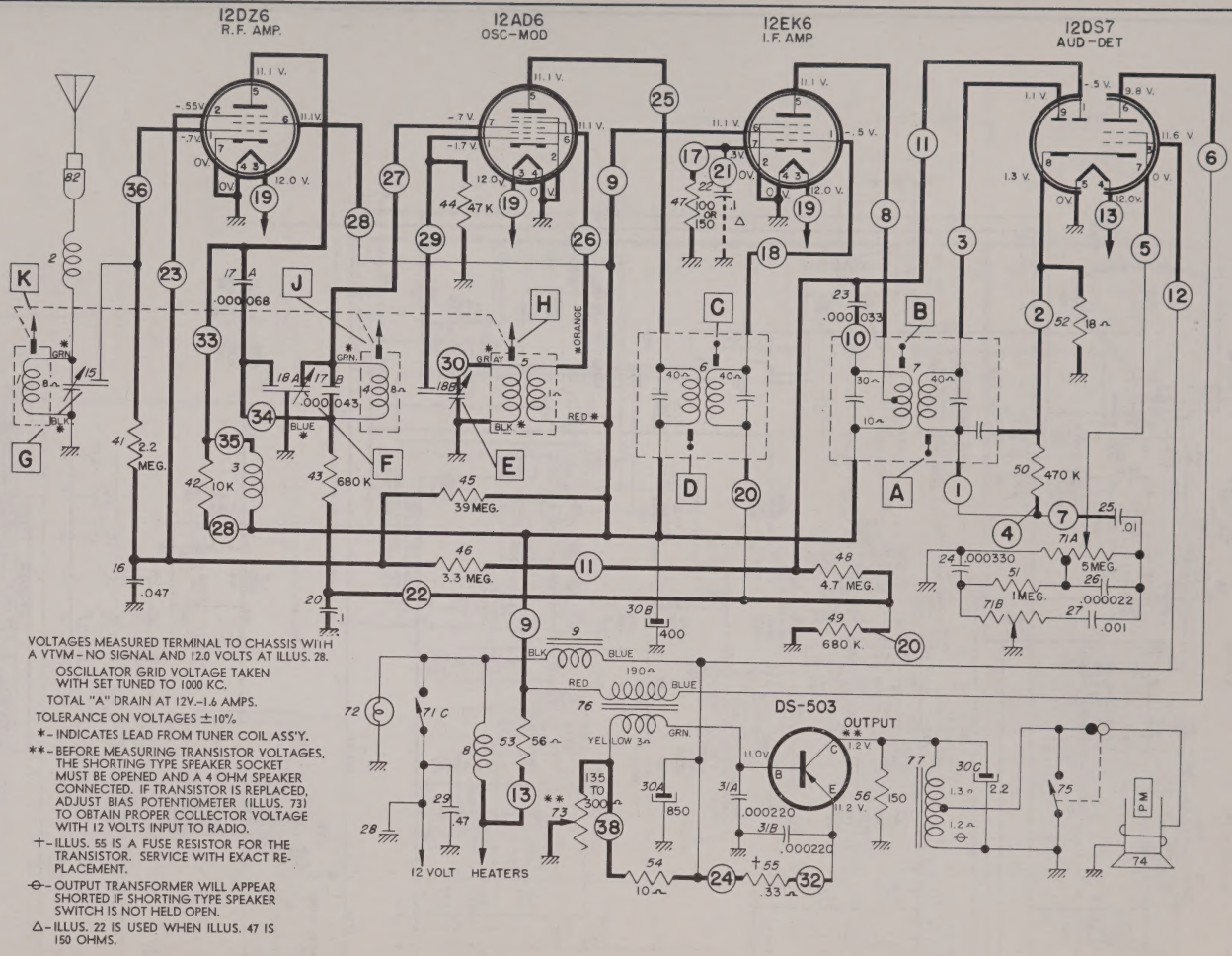
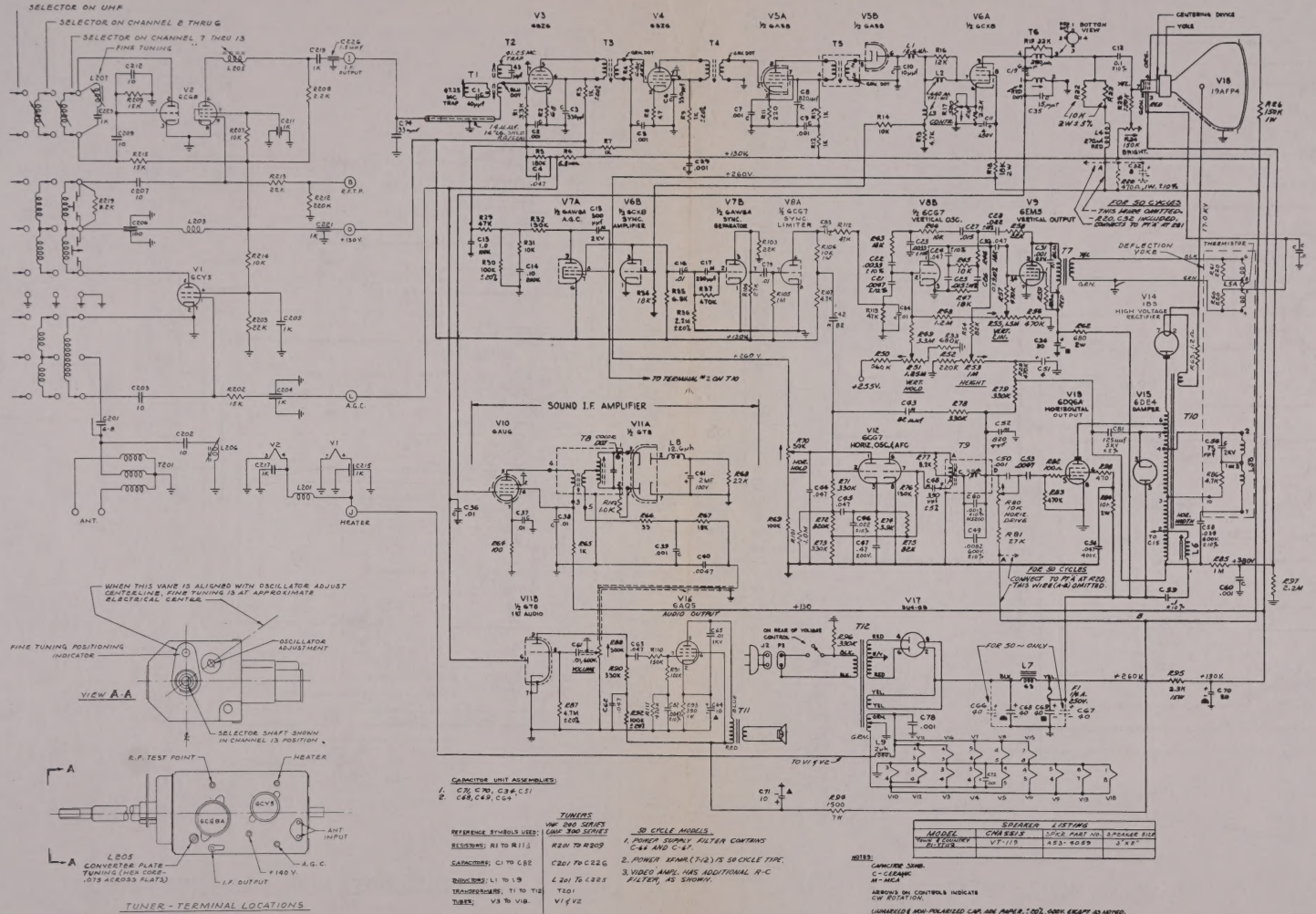
OLDSMODILE MODEL 989387


12DZ6
R.F. AMP.
12AD6
OSC-MOD
12EK6
I.F. AMP
12DS7
AUD-DET
DS-503
OUTPUT
12 VOLT HEATERS
P.M.
VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM - NO SIGNAL AND 12.0 VOLTS AT ILLUS. 28.
OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.
TOTAL "A" DRAIN AT 12V.-1.6 AMPS.
TOLERANCE ON VOLTAGES ±10%
*- INDICATES LEAD FROM TUNER COIL ASS'Y.
**- BEFORE MEASURING TRANSISTOR VOLTAGES, THE SHORTING TYPE SPEAKER SOCKET MUST BE OPENED AND A 4 OHM SPEAKER CONNECTED. IF TRANSISTOR IS REPLACED, ADJUST BIAS POTENTIOMETER (ILLUS. 73) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO.
+- ILLUS. 55 IS A FUSE RESISTOR FOR THE TRANSISTOR. SERVICE WITH EXACT REPLACEMENT.
-⊖- OUTPUT TRANSFORMER WILL APPEAR SHORTED IF SHORTING TYPE SPEAKER SWITCH IS NOT HELD OPEN.
Δ- ILLUS. 22 IS USED WHEN ILLUS. 47 IS 150 OHMS.

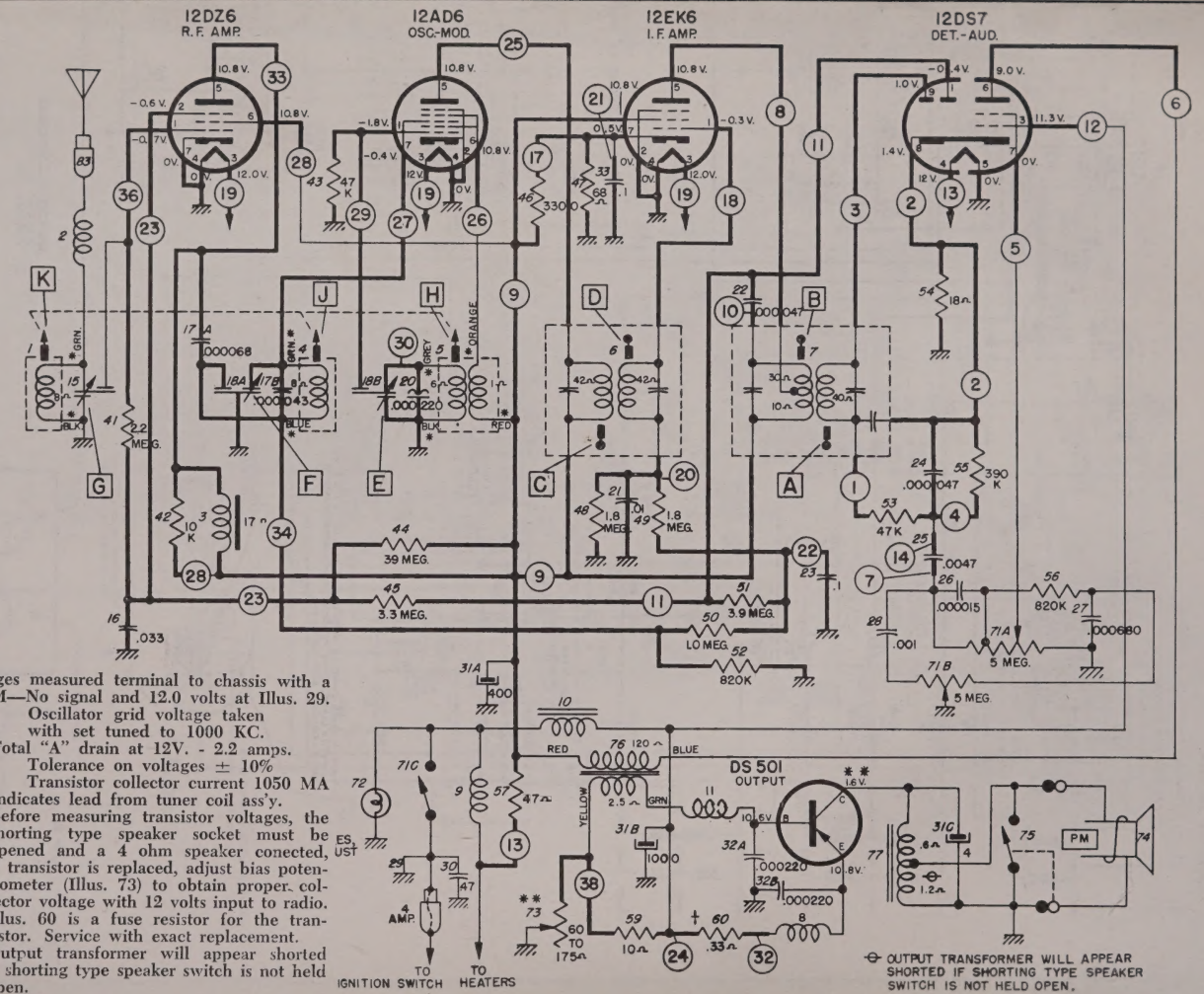
Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.



ANDREA MODELS BR-P1-VT-119, CG-P1-VT-119 (CH. VT-119)

Schematic Diagram Courtesy of Andrea Radio Corp.

STUDEBAKER MODELS AC-3085, AC-3087



Voltages measured terminal to chassis with a VTVM—No signal and 12.0 volts at Illus. 29. Oscillator grid voltage taken with set tuned to 1000 KC.

Total "A" drain at 12V. - 2.2 amps.

Tolerance on voltages ± 10%

Transistor collector current 1050 MA

*—Indicates lead from tuner coil ass'y.

**—Before measuring transistor voltages, the shorting type speaker socket must be opened and a 4 ohm speaker conected, if transistor is replaced, adjust bias potentiometer (Illus. 73) to obtain proper collector voltage with 12 volts input to radio.

†—Illus. 60 is a fuse resistor for the transistor. Service with exact replacement.

⊖—Output transformer will appear shorted if shorting type speaker switch is not held open.

⊖ OUTPUT TRANSFORMER WILL APPEAR SHORTED IF SHORTING TYPE SPEAKER SWITCH IS NOT HELD OPEN.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.